UNCLASSIFIED AD NUMBER AD869390 LIMITATION CHANGES TO: Approved for public release; distribution is unlimited. FROM: Distribution authorized to U.S. Gov't. agencies and their contractors; Critical Technology; FEB 1970. Other requests shall be referred to U.S. Army Aviation Materiel Laboratories, Fort Eustics, VA. This document contains exportcontrolled technical data. **AUTHORITY** USAMRDL ltr, 18 Jun 1971

Best Available Copy

USAAVLABS TECHNICAL REPORT 69-94

AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR HEAD CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERISTICS AND ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER

By

James C. Linville

February 1970

U. S. ARMY AVIATION MATERIEL LABORATORIES FORT EUSTIS, VIRGINIA

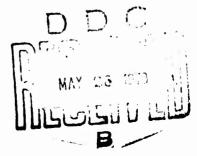
CONTRACT DA 44-177-AMC-203(T)
UNITED AIRCRAFT CORPORATION
SIKORSKY AIRCRAFT DIVISION
STRATFORD, CONNECTICUT

This document is subject to special export controls, and each transmittal to foreign governments or foreign nationals may be made only with prior approval of US Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604.

00

00





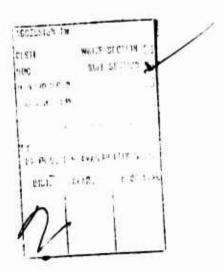
Disclaimers

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission, to manufacture, use, or sell any patented invention that may in any way be related thereto.

Disposition Instructions

Destroy this report when no longer needed. Do not return it to the originator.





DEPARTMENT OF THE ARMY US ARMY AVIATION MATERIEL LABORATORIES FORT EUSTIS, VIRGINIA 23604

This report has been reviewed by the U. S. Army Aviation Materiel Laboratories and is considered to be technically sound. The report is published for the exchange of information and the stimulation of ideas.

Task 1F162204A13903 Contract DA 44-177-AMC-203(T) USAAVLABS Technical Report 69-94 February 1970

AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR HEAD CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERISTICS AND ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER

SER-50604

bу

James C. Linville

Prepared by

United Aircraft Corporation Sikorsky Aircraft Division Stratford, Connecticut

for

U. S. ARMY AVIATION MATERIEL LABORATORIES FORT EUSTIS, VIRGINIA

This document is subject to special export controls, and each transmittal to foreign governments or foreign nationals may be made only with prior approval of

U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604.

SUMMARY

A wind tunnel test was conducted to investigate the effect of rotor head configuration and fuselage pitch and yaw angle on the rotor performance and wake characteristics of helicopters. The test model had a rotor diameter of 9 feet and was a 1/8th scale representation of a generalized 40,000-pound helicopter. The model rotor was scaled to be dynamically similar to a full-scale rotor when operated at half full-scale forward and tip speeds.

Test configurations included two rotor head fairings in addition to the basic rotor head. One fairing was a "cap" fairing similar to that used on the Sikorsky CH-3C helicopter. The other fairing consisted of an ellipsoidal shell which covered the rotor head, and a streamlined enclosure for the rotor shaft and control system pushrods. This streamlined enclosure incorporated blowing boundary layer control jets which were intended to prevent flow separation. The basic rotor head with and without the ellipsoidal fairing was tested with rotor blades; the cap fairing was not tested with rotor blades.

From results obtained in this test, it has been concluded that helicopter yaw angle has no significant effect upon rotor performance. Wake survey data showed that the wake of the helicopter tends to remain directly downstream of the helicopter rotor head for the pitch and yaw angles investigated. Data obtained for the ellipsoidal rotor head fairing indicated that the boundary layer control jet mass flow during this test was not sufficient to forestall separation around the fairing, and therefore no drag reduction was obtained. However, previous full-scale tests, partially reported in Reference 1, demonstrated that significant reductions in drag and wake size can be obtained with this type of fairing with sufficient boundary layer control. Data obtained for the cap fairing did not indicate the reduction in turbulence or deflection of the wake which is effective in eliminating "tail shake" in full-scale helicopters. These data showed, however, that the cap fairing increased the drag of the model rotor head by about 12 percent.

The wake survey data for the model operating with rotor blades were not regular or consistent, and no discernible trends could be derived from these data. All of the conclusions and results concerning the wake characteristics are based upon data obtained without rotor blades.

FOREWORD

This test program was sponsored by the U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, and was monitored by Mr. Patrick Cancro. The wind tunnel test was conducted in conjunction with the Rotor Transient and Steady State Aeroelastic Characteristics investigation which was conducted under the same contract. The work was authorized by DA Task 1F162204A13903, "Advanced Rotary Wing Research".

Mr. Edmond F. Kiely supervised the modifications to the test article and assisted in the supervision of the wind tunnel tests with Mr. L. J. Bain and Mr. C. F. Niebanck. The wind tunnel test was planned by Messrs L. J. Bain, J. P. Rabbott, and E. A. Fradenburgh.

TABLE OF CONTENTS

<u>Pa</u>	age
SUMMARY	ii
FOREWORD	v
LIST OF ILLUSTRATIONS	ix
LIST OF TABLES	хi
LIST OF SYMBOLS	ii
INTRODUCTION	1
DESCRIPTION OF THE MODEL	2
Rotor System	2 2 3
PRESENTATION OF DATA	5
Wake Survey Data	5 6
DISCUSSION OF RESULTS	7
The Effect of Fuselage Pitch on the Wake Characteristics The Effect of Fuselage Yaw on the Wake Characteristics The Effect of Rotor Head Configuration on the Wake The Effect of Rotor Head Configuration and Fuselage	7 7 7
Angle of Attack on Rotor Head Drag	7
a Full-Scale Ellipsoidal Rotor Head Fairing	8
The Effect of Fuselage Angle of Attack on Average Upwash	9
The Effect of Fuselage Yaw on Rotor Performance	9
CONCLUSIONS	10
LITERATURE CITED	11

APPENDIXES

I.	Description of the Wind Tunnel, Experimental Procedure, Pata Acquisition System, and Data	
	Accuracy and Repeatability	12
II.	Wake Survey Data Tables	62
III.	Rotor Performance and Operating Condition	0
	Data Tables	208
IV.	Rotor Blade Moment and Flapping Data Tables	215
DISTRIB	UTION	217

LIST OF ILLUSTRATIONS

Figure		Page
1	Sikorsky Aircraft Generalized Helicopter Model With Wake Survey Rake Installed	14
2	Rotor Blade Strain Gage Locations	15
3	Configurations Tested	16
4	Rotor Head With the Cap Fairing (Configuration FHC)	17
5	Rotor Head With the Ellipsoidal Fairing (Configuration FHf)	18
6	Schematic Drawing of the Wake Survey Rake	19
7	Local Airstream Speed Ratio Versus Pressure Coefficient	20
8	The Effect of Fuselage Angle of Attack on the Wake of the Helicopter Model, $V_S = 200$ Knots, $\psi = 0^{\circ}$, $\mu^* = 0.5$, Configuration FH	21
9	The Effect of Fuselage Yaw Angle on the Wake of the Helicopter Model, $V_s = 200$ Knots, $\alpha_f = 0^{\circ}$, $\mu^* = 0.5$, Configuration FH	26
10	The Effect of Rotor Head Configuration on the Wake of the Helicopter Model, $V_S = 200$ Knots, $\alpha_f = 0^{\circ}$, $\psi = 0^{\circ}$, $\mu^* = 0.5$	31
11	The Effect of Rotor Head Configuration on the Wake of the Helicopter Model, $V_s = 200$ Knots, $\alpha_f = -4^\circ$, $\psi = -4^\circ$, $\mu^* = 0.5$	35
12	A Comparison of the Drag Characteristics of Three Rotor Head Configurations, V_S = 200 Knots, ψ = 0, μ * = 0.5	39
13	Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Installed in the United Aircraft Research Laboratories 18-Foot Main Wind Tunnel	40
14	The Effect of Increasing Boundary Layer Control Jet Pressure Ratio on the Wake 38 Feet Behind the Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Model,	
	$V = 105 \text{ Knots}, \alpha_f = 0^{\circ}, \mu^* = 0.27 \dots$. 41

Figure		Page
15	The Effect of Boundary Layer Control Jet Pressure Ratio on the Drag Characteristics of the Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Model	44
16	The Effect of Fuselage Angle of Attack on the Average Upwash Measured Behind the Helicopter Model for Various Rotor Head Configurations	45
17	Rotor Performance Data, Including Comparative Data From Reference 8. V_s = 120 Knots, μ = 0.3, Configuration FHB	47
18	Rotor Performance Data, Including Comparative Data From Reference 8. V_S = 200 Knots, μ = 0.5, Configuration FHB	50
19	Rotor Lift Data. V_S = 250 Knots, μ = 1.0, Configuration FHB	53
20	United Aircraft Research Laboratories 18-Foot Main Wind Tunnel	54
21	Sample Rotor Performance Data, Including Comparative Performance Data Obtained From Reference 8.	
	$V_s = 120$ Knots, $\mu = 0.3$	55

LIST OF TABLES

Table		Page
I	Summary of Rotor Operating Conditions	58
II	Summary of Model Configurations	59
III	Areas Enclosed by the C_P = 0.9 Contours for Various Rotor Head Configurations at Two Füselage Attitudes	60
IV	Data Run Summary	61
V	Wake Pressure Coefficients and Flow Directions at Three Forward Speeds and Various Fuselage Attitudes,	
	Configuration F	62
VI	Wake Pressure Coefficients and Flow Directions at Two Forward Speeds and Various Fuselage Attitudes, Configuration FH	83
		03
VII	Wake Pressure Coefficients and Flow Directions at Three Forward Speeds and Various Fuselage Attitudes, Configuration FHC	96
VIII	Wake Pressure Coefficients and Flow Directions at Three Forward Speeds and Various Fuselage Attitudes, Configuration FHf	117
IX	Wake Pressure Coefficients and Flow Directions at Three Forward Speeds and Various Fuselage Attitudes and Rotor Operating Conditions, Configuration FHB	138
х	Wake Pressure Coefficients and Flow Directions at Three Forward Speeds and Various Fuselage Attitudes and Rotor Operating Conditions, Configuration FHBf	171
XI	Wind Tunnel Operating Conditions and Shaft Force and Moment Coefficient-Solidity Ratios at Three Forward Speeds and Various Fuselage Attitudes,	
	Configuration FH	208
XII	Wind Tunnel Operating Conditions and Shaft Force and Moment Coefficient-Solidity Ratios at Three Forward Speeds and Various Fuselage Attitudes,	
	Configuration FHC	209
XIII	Wind Tunnel Operating Conditions and Shaft Force and Moment Coefficient-Solidity Ratios at Three Forward Speeds and Various Fuselage Attitudes,	
	Configuration FHf	210

Table		Page
XIV	Wind Tunnel Operating Conditions and Shaft Force and Moment Coefficient-Solidity Ratios at Three Forward Speeds and Various Fuselage Attitudes and Rotor Operating Conditions, Configuration FHB	211
XV	Wind Tunnel Operating Conditions and Shaft Force and Moment Coefficient-Solidity Ratios at Three Forward Speeds and Various Fuselage Attitudes and Rotor Operating Conditions, Configuration FHBf	213
XVI	Rotor Blade Moment and Flapping Data, Configuration FHB	215
XVII	Rotor Blade Moment and Flapping Data, Configuration FHBf	216

LIST OF SYMBOLS

A _{ls}	first harmonic lateral cyclic pitch angle with respect to the rotor shaft, positive for increasing pitch on forward blade, degrees
als	first harmonic longitudinal flapping angle with respect to the rotor shaft, positive for forward blade up, degrees
B _{ls}	first harmonic longitudinal cyclic pitch angle with respect to the rotor shaft, positive for pitch down on edvancing blade, degrees
ъ	number of blades
b _{ls}	first harmonic lateral flapping angle with respect to the rotor shaft, positive for advancing blade flapping down, degrees
C _D /σ	rotor drag coefficient - solidity ratio, $D/\pi R^2 \rho (\Omega R)^2 \sigma$
$^{\mathrm{C}}_{\mathrm{L}}/^{\mathrm{\sigma}}$	rotor lift coefficient - solidity ratio, $L/\pi R^2 \rho (\Omega R)^2 \sigma$
C _P	pressure coefficient (P _T - P _S)/q
C _{PM} /σ	rotor pitching moment coefficient - solidity ratio, $PM/\pi R^3 \rho (\Omega R)^2 \sigma$
C _{RM} ∕σ	rotor rolling moment coefficient - solidity ratio, $RM/\pi R^3 \rho (\Omega R)^2 \sigma$
C _Q ∕σ	rotor torque coefficient - solidity ratio, $Q/\pi R^3 \rho (\Omega R)^2 \sigma$
C _Y /σ	rotor side force coefficient - solidity ratio, $Y/\pi R^2 \rho (\Omega R)^2 \sigma$
С	blade chord, feet
D	drag measured at rotor hub, pounds
f	parasite area, D/q, square feet
L	lift measured at the rotor hub, pounds
Mc.30R	blade chordwise bending moment measured at 30 percent radius
Mc.60R	blade chordwise bending moment measured at 60 percent radius

```
blade flapwise bending moment measured at 30 percent radius
M<sub>F</sub>. 30R
          blade flapwise bending moment measured at 60 percent radius
Mr.60R
          blade torsional moment measured at 18 percent radius
M<sub>T.18R</sub>
          blade torsional moment measured at 35 percent radius
M<sub>T.35R</sub>
N
          rotor speed, rpm
P_{,T}
          boundary layer control jet total pressure, pounds per square foot
P_{S}
          local static pressure, pounds per square foot
P_{\mathbf{T}}
          local total pressure, pounds per square foot
ΡM
          pitching moment measured at the rotor hub, positive for
          nose up, foot-pounds
RM
          rolling moment measured at the rotor hub, positive for right
          side down, foot-pounds
Q
          rotor shaft torque, positive for powered rotor, foot-pounds
          local dynamic pressure, 100 \text{ V}^2, pounds per square foot
q
R
          rotor radius, feet
          forward velocity, feet per second or knots, as indicated
٧,٦
          boundary layer control jet velocity, feet per second
V<sub>s</sub>
          simulated forward speed, knots, (V_s = 2V)
Y
          rotor hub side force in the body axis system, positive for
          force to right, pounds
          rotor control axis angle of attack, \alpha_{\rm S} - B_{\rm ls}, degrees
αc
          fuselage angle of attack, called ALPHA in Appendix II tables,
a f
          positive for nose up, degrees
          rotor tip path plane angle of attack, \alpha_{\rm f} + a_{\rm ls}, degrees
TPP
          rotor shaft angle of attack (= \alpha_f on model), degrees
\alpha_{s}
δ3
          ritch flap coupling angle, \tan \delta_3 = -1.0, degrees
```

upwash angle, degrees

- average upwash angle, formed by averaging the upwash angle measured by all of the flow direction meters except the topmost meter, degrees. (The upwash angle measured by the topmost meter was omitted because of symmetry.)
- $\boldsymbol{\theta}_{\mathbf{c}}$ rotor blade collective pitch, positive for leading edge up, degrees
- μ advance ratio, V/ΩR
- $\mu^{\text{\#}}$ effective advance ratio, the advance ratio which would have been attained if the rotor blades had been attached, $V/\Omega R$
- ρ air density, slugs per cubic foot
- σ rotor solidity, $bc/\pi R$
- σ^{\bullet} sidewash angle, positive for flow from left to right looking aft, degrees
- ψ model yaw angle, called PSI in Appendix II tables, positive for nose to the right, degrees
- Ω rotor angular velocity, radians per second

INTRODUCTION

In typical current helicopters, about 30 percent of the total air-craft drag can be attributed to the rotor head. Advanced high-speed rotor-craft will have improved fuselages, resembling the low-drag configurations commonly used for fixed-wing aircraft. Unless rotor heads for these rotor-craft are faired or are much cleaner in design, rotor head drag will account for much more than 30 percent of the total aircraft drag.

Reduction of rotor head drag is a complicated task. The problem is influenced by a number of variables, including the interference of the rotor, fuselage-pylon-rotor head interference, leakage from the pylon, and fuselage incidence and yaw angles. Further complications arise because both the size and location of the rotor head-pylon wake must be considered with respect to the tail surfaces of the aircraft, for these can have a strong effect on tail rotor loads, rudder and elevator effectiveness, and airframe vibrations.

A large amount of experimental work has been done to investigate the drag characteristics of helicopters and helicopter components. Some of this work is reported in References 2 through 6, which are concerned with body force measurements. No wake surveys were performed.

The objectives of this investigation were to study the effects of rotor head configuration, rotor performance, and fuselage pitch and yaw angle on the performance and wake characteristics of a complete, generalized helicopter. Several rotor head configurations were tested with and without rotor blades at various operating conditions. Fuselage yaw angle was varied for all conditions tested. The flow direction and dynamic pressure at the tail of the model were measured, as were rotor shaft forces and moments. When the model was tested with the rotor, blade vibratory stresses were also measured.

DESCRIPTION OF THE MODEL

The model used in this test was the Sikorsky Aircraft 1/8th scale generalized helicopter model, designed to investigate the aerodynamic characteristics of advanced rotorcraft. For this test, the model consisted of a fuselage which enclosed the rotor drive system and control system and a wake survey rake which was attached to the aft end of the model. A photograph of the model with the wake survey rake and an ellipsoidal rotor head fairing is presented in Figure 1. A more detailed description of the test article follows. The wind tunnel, experimental procedure, data acquisition system, and data accuracy and repeatability are described in Appendix I.

Rotor System

The model rotor was a four-bladed fully articulated system with a radius of 54 inches and a blade chord of 4.24 inches. The resulting solidity was 0.1. The coincident flap-lag hinges were offset 5.6 percent of the rotor radius, and the pitch-flap coupling ratio, $\tan \delta_3$, was -1.0 degree pitch per degree of flap. The rotor blades were riber glass replicas of typical full-scale construction, similar to those described in Reference 7, and were used previously in the wind tunnel tests described in Reference 8. Blade stiffnesses were scaled so that the model rotor was dynamically similar to a full-scale rotor operating at twice the model forward and rotor tip speeds. Table I lists the model operating conditions, including the actual and simulated forward speeds. A schematic drawing of a rotor blade showing the strain gage locations is presented in Figure 2.

The rotor was powered by a 19-horsepower variable-frequency electric motor, and the control system was hydraulically actuated. All of the rotor system components, including the control actuators, hydraulic pump, rotor gearbox, and the 19-horsepower electric motor were mounted inside the model on a separate frame, which was supported by a six-component force measuring balance. The electric power lines, instrumentation wires, and control system wires were routed so as to minimize interference with the balance readings. The balance was of the floating frame, internal strain gage type and was temperature compensated. The slight interactions between force components were accounted for in the data reduction program.

Fuselage

The fuselage is shown in Figures 1 and 3. The model was constructed around a steel frame and was covered with a smooth fiber glass shell fuselage. The fuselage was 9 feet long and had a projected frontal area of 1.25 square feet, not including the rotor pylon.

Model Configurations

The model was tested without rotor blades in the four configurations shown in Figure 3, and with rotor blades in the two configurations labeled FHB and FHBf. Testing with and without rotor blades was conducted at the

same forward speed-rotor speed combinations which are listed in Table I.

The simplest configuration tested without rotor blades was the fuselage with no rotor head, but with the rotor shaft protruding from the fuselage. The model was also tested without rotor blades with the bare rotor head and with two rotor head fairings.

The simplest fairing was a "cap" fairing, Figure 4, similar to the fairing mounted on Sikorsky H-3 series helicopters. This fairing reduces helicopter "tail shake", which is caused by the interaction of the wake of the rotor head with the tail and possibly the tail rotor of the helicopter. The fairing is a dome-shaped cover that fits over the rotor head.

The second rotor head fairing, Figure 5, consisted of an ellipsoidal fiber glass shell covering the rotor head, a cylinder enclosing the rotor shaft and control pushrods, and a wedge-shaped afterbody which gave the cylinder a sharp trailing edge. The ellipsoidal shell was mounted to the rotor blades outboard of the flap-lag hinges so that it would follow the largest blade motions-coning, average lag, and first harmonic flapping. This minimized the size of the cutout holes necessary to accommodate the motions of the rotor blades. The cylinder enclosing the rotor shaft and pushrods, was mounted to the fuselage shell and was provided with air ejection boundary layer control slots located at the point of maximum thickness. It should be noted that because the cylinder was attached to the fuselage, rotor force measurements taken with this configuration do not include forces on the cylinder. The ellipsoidal shell rotated around the cylinder, and the sliding joint was sealed with felt. A wedge-shaped afterbody was mounted on the aft end of the cylinder and was segmented and spring loaded to stay in contact with the ellipsoidal shell. A felt seal was used between the wedge-shaped afterbody and the ellipsoidal shell. In operation, the boundary layer control jets were intended to prevent flow separation over the wedge-shaped afterbody. This technique has been used successfully on a full-scale model and will be discussed further under "Discussion of Results".

The model was tested with rotor blades attached to the basic rotor head and to the rotor head with ellipsoidal fairing. As mentioned before, the model with the cap fairing was not tested with rotor blades. The test configurations are summarized in Table II.

Wake Survey Rake

The wake survey rake measured total head pressures at 112 stations and flow directions at 9 stations in a 9-square-foot area. Figure 6 shows the wake survey rake with the pressure probe locations. The total head pressure probes were of the shrouded, or Kiel type. The flow direction meters were United Sensor five-holed probes.

Before the test program was conducted, the wake survey rake was calibrated in the 4-by-6-foot Pilot Wind Tunnel at the United Aircraft Research Laboratories. The shrouded total pressure taps were found to be insensitive to incoming flow directions of up to \pm 25 degrees.

The pressures to be surveyed were monitored by four 48-port scanning type pressure valves. Each pressure valve was equipped with a 2.5-psi differential pressure transducer. The entire pressure valve module was mounted inside the rear model extension that supported the wake survey rake.

PRESENTATION OF DATA

Wake Survey Data

All of the wake survey data obtained in the test, including the data obtained with rotor blades, are presented in tabular form in Appendix II. These tables list the pressure coefficient measured by each of the 112 total pressure probes and the flow direction measured by each of the 9 flow direction meters. The numbers are arranged so that their locations in the table correspond to the locations of the measuring probes given in Figure 6.

Flow directions are indicated at nine locations by the values within boxes. The topmost number in each box is vertical flow displacement in degrees (positive for upwash), and the bottom number is horizontal flow displacement in degrees (positive for flow from left to right looking aft). These flow directions are measured with respect to the wake survey rake which is rigidly attached to the tail of the model. Therefore, to obtain upwash or sidewash angles with respect to the wind tunnel axis, the fuse-lage pitch and yaw angles, given in each table, must be removed from the tabulated flow direction:

Upwash = ε = Vertical flow displacement - $\alpha_{\mathbf{f}}$.

Sidewash = σ' = Horizontal flow displacement + ψ .

Total pressures are listed in the table as pressure coefficients, defined as $C_P = (P_T - P_S)/q$. Pressure coefficient is related to fluid speed as shown in Figure 7. The dynamic pressures and velocities given at the top of each table are the actual values obtained in the wind tunnel, not the simulated values.

A selected portion of the wake survey data obtained without rotor blades is presented in graphical form to permit visualization of the wake and to illustrate the effects observed in this test. Figure 8 is an example of this. These wake survey figures show, within the bounds of the wake survey rake, lines of constant pressure coefficient and arrows which indicate upwash and sidewash as seen by an observer looking downstream.

Flow direction arrows are formed by the vector addition of upwash and sidewash arrows. The "tail" of each arrow is located at the measurement point. The scale of these arrows, shown on each figure, is degrees, which for the small angles being dealt with is proportional to velocity. In some cases, the measured angles were unusually large, so that flow direction arrows would go off the figure. In these cases, the upwash and sidewash angles are printed adjacent to the measurement point.

Rotor Performance Data

The rotor performance data obtained in this test are presented in tabular form in Appendix III. Each table in this appendix presents all of the data obtained for a particular configuration. The tables include the

wind tunnel operating velocity, wind tunnel dynamic pressure, model attitude, rotor cyclic pitch, collective pitch, and first harmonic longitudinal and lateral flapping components, as well as rotor shaft force and moment coefficient-solidity ratios. When the rotor blades were not attached to the model, the force and moment coefficient-solidity ratios were computed as if the blades were present. This was done to facilitate comparison of the data. To obtain forces and moments from these data, the following formulae can be used:

 $L = 12.72 (q/\mu^2) C_L/\sigma$, pounds

 $D = 12.72 (q/\mu^2) C_D/\sigma$, pounds

Y = 12.72 (q/μ^2) C_Y/σ , pounds

Q = 57.26 (q/μ^2) C_Q/σ , foot-pounds

PM = $57.26 (q/\mu^2) CPM/\sigma$, foot-pounds

RM = 57.26 (q/μ^2) C_{RM}/σ , foot-pounds

Rotor Blade Moment and Flapping Data

The rotor blade moment and flapping data are presented in tabular form in Appendix IV. These data are in the form of maximum and minimum bending moment or flapping values measured during a particular test condition. The blades were dynamically scaled so that a flapwise moment of 60 inch-pounds, a chordwise moment of 125 inch-pounds, and a torsional moment of 85 inch-pounds would each correspond to a 10,000-psi stress in an equivalent aluminum blade. The data are not presented in graphical form because no variation in rotor blade stress or flapping with fuselage yaw angle was observed, and because the data agree with similar data obtained in Reference 8.

DISCUSSION OF RESULTS

The Effect of Fuselage Pitch on the Wake Characteristics

As fuselage pitch angle increases, the position of the wake remains relatively constant with respect to the streamwise projected fuselage profile, i.e., the wake trails directly downstream. This is shown in Figure 8 for the model with the basic rotor head attached but without rotor blades (configuration FH) at a simulated forward speed of 200 knots and at values of α_f between -8 and +8 degrees. The wake did, however, move up with respect to the tail of the helicopter. No consistent effects of fuselage pitch angle on the shape of the wake were observed. It is believed that the nonsteady nature of the wake makes an accurate definition of the average wake impossible using the data obtained in this test which represent the instantaneous pressures in the wake.

The Effect of Fuselage Yaw on the Wake Characteristics

٠.

Yawing the model in either direction causes the wake to shift with respect to the tail so as to remain behind the streamwise projected profile. This is shown in Figure 9 for the model with the basic rotor head (configuration FH) at a simulated forward speed of 200 knots and at values of ψ between -8 and +8 degrees. Examination of the flow directions measured by the upper row of flow direction probes indicates that the downwash is greater on the downstream side of the model than on the undisturbed side. Again, no consistent effects on the shape of the wake were observed.

The Effect of Rotor Head Configuration on the Wake

Adding the basic rotor head to the model increases the size of the wake compared to the bare shaft (configuration F) case. Adding the cap fairing to the basic rotor head (configuration FH) further increases the wake size (this will be discussed in more detail in the next section). However, no change in the shape or the location of the wake was noticed which would indicate why the cap fairing has been effective in flight operation in reducing tail shake. A better understanding of the mechanism of this improvement might be obtained from examination of dynamic measurements of the turbulence in the wake. Adding the ellipsoidal fairing to the configuration FH causes the wake to increase in size slightly. These effects are shown in Figure 10 for the model in an unpitched, unyawed attitude, and in Figure 11 for the model in an attitude which is typical of normal helicopter flight, i.e. nose down and to the left (negative α_{Γ} , negative ψ). Data for these figures were taken at a simulated forward speed of 200 knots.

The Effect of Rotor Head Configuration and Fuselage Angle of Attack on Rotor Head Drag

The parasite drag of the rotor head increases slightly with increasing fuselage angle of attack. This is illustrated in Figure 12 for a simulated forward speed of 200 knots. This figure also shows that the addition of

the cap fairing increases the drag of the basic rotor head by about 0.03 square foot (12 percent), and that the addition of the ellipsoidal fairing increases the drag of the basic rotor head by about 0.02 square foot (8 percent).

The drag measurements for the ellipsoidal fairing did not include the drag of the cylinder enclosing the rotor shaft and pushrods (this was discussed in the description of the model configurations), and none of the drag measurements included possible interference drag effects. In order to provide an indication of the total drag, the area enclosed by the Cp = 0.9 contour was measured for all of the conditions shown in Figures 10 and 11. Fluid passing through a Cp = 0.9 contour has lost momentum; therefore, a large enclosed area connotes a large drag. These areas are presented in Table III in square feet and as a percentage of the area for the basic rotor head. The area within the Cp = 0.9 contour is approximately proportional to the total drag of the rotor head and fuselage and includes any interferences between these components. The results show the same trends that are shown in Figure 12: the ellipsoidal fairing (configuration FHf) has less drag than the cap fairing (configuration FHC), and, for zero fuselage angle of attack, both configurations have higher drag than the basic rotor head. The small area enclosed by the $C_{\rm P}$ = 0.9 contour for configuration FHf at -4 degrees fuselage angle of attack is not reflected by a corresponding reduction in the drag measured at the same attitude. This is probably due to a reduction in the interference drag between the pylon and the ellipsoidal fairing, which would not be reflected in the drag measured at the rotor head but which would decrease the momentum loss in the wake and therefore decrease the area enclosed by the Cp = 0.9 contour. No attempt has been made to integrate the wake survey data to obtain total drag because of the unknown effects of the model mounting struts, and because the wake is not fully enclosed by the wake survey rake.

The Effect of Boundary Layer Control Jet Pressure Ratio on the Drag and Wake Characteristics of a Full-Scale Ellipsoidal Rotor Head Fairing

As previously mentioned, the model boundary layer control jet pressure ratio was not sufficient to prevent flow separation over the wedge-shaped afterbody. This was determined from observing tufts attached to the cylinder and afterbody. Large pressure losses in the ducts connecting the high-pressure source to the boundary layer control system caused this inadequacy. However, full-scale tests of an ellipsoidal rotor head fairing mounted on a modified SH-3A pylon, Figure 13, were conducted by Sikorsky Aircraft in 1960 in the United Aircraft Corporation 18-foot Main Wind Tunnel. The test model is described in more detail in Reference 1. Wake survey data were taken during this test using a wake survey rake located 38 feet downstream of the center of the rotor head, which is the approximate distance between the rotor head and the tail rotor of the SH-3A. Since this test was full scale, the actual tunnel speed V, and not a simulated forward speed, will be referred to in the discussions. The results presented here were obtained at a forward speed of 105 knots, an effective advance ratio, μ^* , of 0.27, and at zero angle of attack.

This full scale test demonstrated that significant reductions in drag and wake size could be obtained with sufficient boundary layer control jet pressure. Figure 14 presents some of the wake survey data that were obtained in this test. The size of the wake decreased with increasing boundary layer control jet pressure ratio, defined as $(P_J - P_S)/q$, until a jet pressure ratio of about 7.7 was attained. Beyond this point, increasing jet pressure ratio caused no reduction in wake size, indicating that separation had been minimized.

The parasite area, f, of the full-scale model is plotted against boundary layer control jet pressure ratio in Figure 15. Due to jet reaction, the measured drag of the full-scale model decreased as the boundary layer control jet pressure ratio was increased beyond 7.7. This is shown by the lower curve of Figure 15. There was, however, an optimum operating jet pressure ratio where the total equivalent drag, which includes form drag and the drag equivalent of the power required to operate the boundary layer control jets (assuming 75 percent efficient pumps), was a minimum. The upper curve of Figure 15 shows that this optimum point was reached at a jet pressure ratio of about 7.7.

The Effect of Fuselage Angle of Attack on Average Upwash

Increasing fuselage angle of attack has no discrete effect on the average upwash. Figure 16 presents the average upwash versus fuselage angle of attack for each of the four basic configurations tested at various yaw angles. Included in this figure are comparative data obtained from a floating tail flow direction meter which was tested previously on the model, Reference 8. The upwash angle remains essentially constant at minus one degree for all configurations except the ellipsoidal fairing. Upwash increased with angle of attack for this configuration. The rotor head lift data for this configuration do not indicate any significant decrease in lift with angle of attack which might explain this.

The Effect of Fuselage Yaw on Rotor Performance

The effect of fuselage yaw on rotor performance for three forward speed-advance ratio combinations is shown in Figures 17, 18, and 19. Included in Figures 17 and 18 are comparative data obtained from Reference 8 shown as dashed lines. Drag and torque data for the 250-knot simulated forward speed case are not presented in Figure 19 because very little variation in these parameters was observed. Rotor lift, drag, and torque were found to be essentially unaffected by fuselage yaw.

CONCLUSIONS

As a result of the tests described in this report, the following conclusions have been drawn:

- 1. Helicopter fuselage yaw angle has no significant effect upon rotor lift, drag, or torque characteristics for the configuration tested.
- 2. The wake survey pressure data obtained for the model with rotor blades was not regular or consistent, and no discernable trends have been observed in these data. The following conclusions are based on wake survey data obtained without rotor blades.
- 3. The wake of the helicopter tends to remain directly downstream of the helicopter rotor head for the angles of pitch and yaw that were investigated (i.e., angles between +8 and -8 degrees).
- 4. The ellipsoidal rotor head fairing used in this test resulted in an 8 percent increase in rotor head drag over the basic rotor head and increased the area of the wake slightly. However, this type of fairing, when used with an effective blowing boundary layer control system, may provide significant reductions in drag and wake size.
- 5. The "cap" rotor head fairing used in this test resulted in a 12 percent increase in rotor head drag over the basic rotor head and increased the size of the wake slightly. The data obtained in this test gave no indication of why this fairing is effective in eliminating tail shake.

LITERATURE CITED

- 1. Fradenburgh, E. A., HIGH PERFORMANCE SINGLE ROTOR HELICOPTER STUDY, TCREC Technical Report 61-44, U. S. Army Transportation Research Command, Fort Eustis, Virginia, April 1961.
- 2. Harrington, R. D., REDUCTION OF HELICOPTER PARASITE DRAG, NACA Technical Note 3234, Langley Research Center, Langley Field, Virginia, August 1954.
- 3. Churchill, G. B., and Harrington, R. D., PARASITE-DRAG MEASUREMENTS OF FIVE HELICOPTER ROTOR HUBS, NASA Memo 1-31-59L, Langley Research Center, Langley Field, Virginia, February 1959.
- 4. Sweet, George E., and Jenkins, Julian L., WIND TUNNEL INVESTIGATION OF THE DRAG AND STATIC STABILITY CHARACTERISTICS OF FOUR HELICOPTER FUSELAGE MODELS, NASA Technical Note D-1363, Langley Research Center, Langley Field, Virginia, July 1962.
- 5. Pruyn, R. R., and Miller, N. J., STUDIES OF ROTORCRAFT AERODYNAMIC PROBLEMS AIMED AT REDUCING PARASITE DRAG, ROTOR-AIRFRAME INTERFERENCE EFFECTS, AND IMPROVING AIRFRAME STATIC STABILITY, Kellett Aircraft Corporation, 1960.
- 6. Moser, H. H., FULL SCALE INVESTIGATION OF HELICOPTER DRAG, Journal of the American Helicopter Society, Vol. 6 No. 1, January 1961, pp 27-33.
- 7. Fradenburgh, E. A., and Kiely E. F., DEVELOPMENT OF DYNAMIC MODEL ROTOR BLADES FOR HIGH SPEED HELICOPTER RESEARCH, Paper presented at the Symposium on Aeroelastic and Dynamic Modeling Technology, Wright-Patterson Air Force Base, Ohio, Sept. 23-25, 1963.
- 8. Bain, Lawrence J., and Landgrebe, Anton J., INVESTIGATION OF COMPOUND HELICOPTER AERODYNAMIC INTERFERENCE EFFECTS, Sikorsky Aircraft, Division of United Aircraft Corporation; USAAVLABS Technical Report 67-44, U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, November 1967, AD 665427.
- 9. Pope, Allan, WIND TUNNEL TESTING, John Wiley and Sons, New York, 1954.
- 10. Heysen, Harry H., LINEARIZED THEORY OF WIND TUNNEL JET BOUNDARY CORRECTION AND GROUND EFFECT FOR VTOL-STOL AIRCRAFT, NASA Technical Report R-124, National Aeronautics and Space Administration, Langley Field, Virginia, January 1962.

APPENDIX I

DESCRIPTION OF THE WIND TUNNEL, EXPERIMENTAL PROCEDURE, DATA ACQUISITION SYSTEM, AND DATA ACCURACY AND REPEATABILITY

Wind Tunnel

The 18-foot Main Wind Tunnel at the United Aircraft Research Laboratories is a closed-throat, single-return wind tunnel capable of speeds up to approximately 175 knots. An artist's sketch of this tunnel is shown in Figure 20. The test section is octagonal in cross section. The tunnel stagnation temperature is held approximately constant by variable-opening air exchangers. Stagnation pressure is atmospheric and is constant throughout the test section in the absence of externally caused momentum losses.

All tunnel controls and data acquisition equipment are located in a control room adjacent to the tunnel test section. Windows permit constant observation of the model from the control room.

Experimental Procedure

At the beginning of each run, the rotor shaft speed and the wind tunnel speed were set to one of the shaft speed-tunnel speed combinations listed in Table I. This was done whether or not the model was being tested with blades to include any possible effects due to rotor head rotation. Then the fuselage pitch and yaw angles were varied. When the rotor blades were attached, the rotor controls were set to produce zero first harmonic lateral flapping and the desired first harmonic longitudinal flapping.

The wake survey data and the rotor performance data were obtained simultaneously whenever possible. However, due to data system malfunctions, some of the runs had to be repeated to obtain the rotor performance data. Table IV summarizes the data runs.

Data Acquisition System

The rotor balance data were recorded manually from Baldwin SR-4 Precision Indicators (Type L-5D). The data were then processed and tabulated by a UNIVAC 1108 digital computer. All rotor balance data have been corrected for force variations due to gravity, and corrections have been applied to the data to compensate for wind tunnel blockage and wall effects, using the methods of References 9 and 10. The blockage correction to velocity was less than 2 percent of the wind tunnel velocity; the wall correction to angle of attack was less than 0.5 degree. All rotor forces and moments taken with the rotor blades are presented with the rotor head lift and drag forces removed.

The pressure data from the wake survey rake were transmitted directly to the United Aircraft Research Laboratories' Static Data Acquisition System (STADAS II), which punched the data on paper tape. Model attitude, dynamic pressure, total head pressure, and various other constants were

entered into the STADAS II facility through a manual input board. The paper tape from STADAS II was converted to magnetic tape, which was then reduced utilizing a UNIVAC 1108.

The rotor blade stress and flapping motion data were recorded by an Ampex AR 200 F.M. magnetic tape recorder. These data were transferred to an oscillograph record, from which the maximum and minimum moment and flapping values were obtained. These moment and flapping data are presented in Appendix IV.

Data Accuracy and Repeatability

The repeatability of the rotor force data is indicated in Figure 21, which presents a comparison of data obtained in this test and in the similar tests described in Reference 8. The rotor force data are estimated to be accurate to within 5 percent of the maximum reading.

As mentioned before, the wake survey data were not consistent when the model was equipped with rotor blades. It is believed that either the nonsteady nature of the wake or vibration-induced errors in the pressure transducers caused the lack of consistency in the data. The estimated accuracy of the wake survey data obtained when the model was operating without rotor blades is as follows:

Error in Pressure Coefficient Expressed as a Percentage of Maximum Reading

Simulated Forward Speed, V_S	Error
120 knots	+ 9.0 pct
200 knots	+ 3.5 pct
250 knots	+ 2.0 pct
300 knots	+ 1.5 pct

Error in the Horizontal and Vertical Flow Displacements

Simulated Forward Speed, V_S	Error
120 knots 200 knots 250 knots	+ 1.5 deg + 0.7 deg + 0.4 deg
300 knots	+ 0.3 deg

The rotor blade moment data are estimated to be accurate to within 2 inch-pounds. The rotor blade flapping motion data are estimated to be accurate to within 0.2 degree.

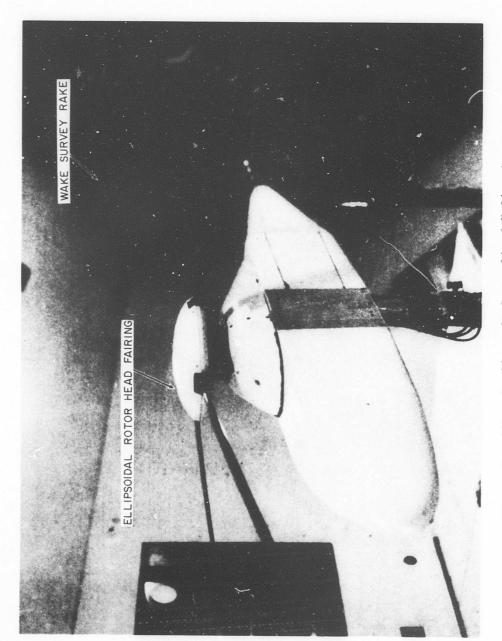


Figure 1. Sikorsky Aircraft Generalized Helicopter Model With Wake Survey Rake Installed.

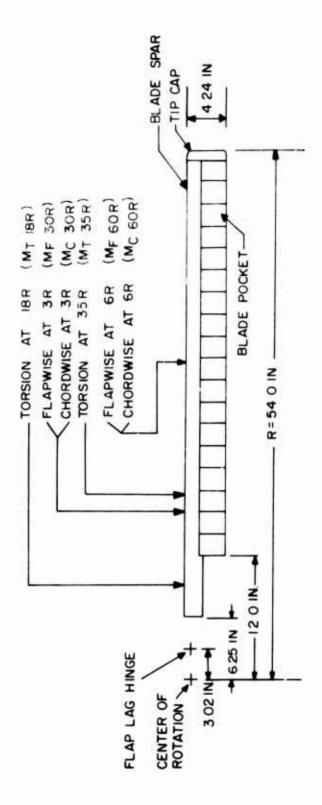


Figure 2. Rotor Blade Strain Gage Locations.

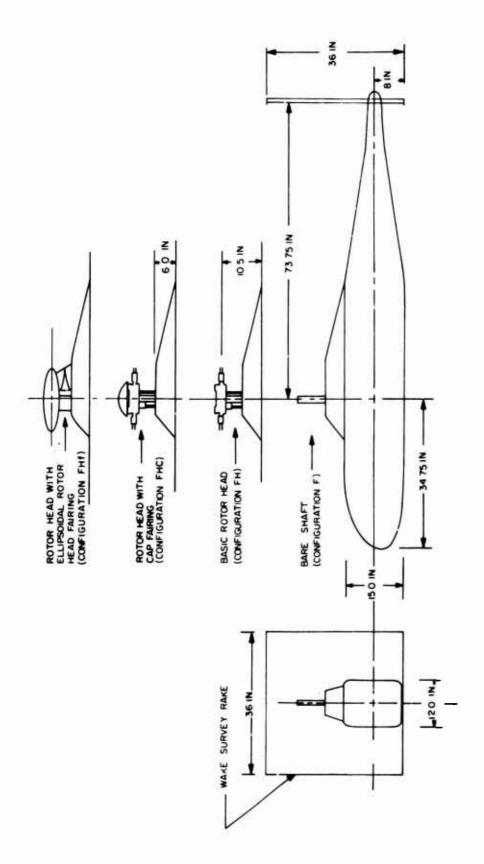


Figure 3. Configurations Tested.

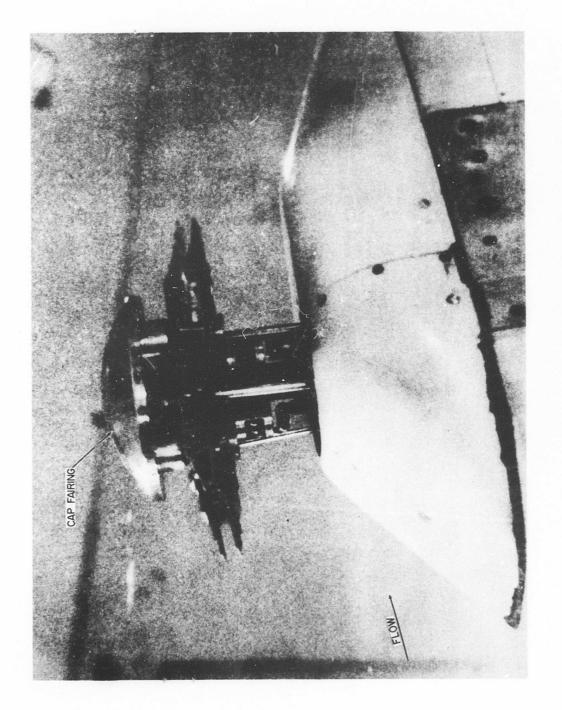
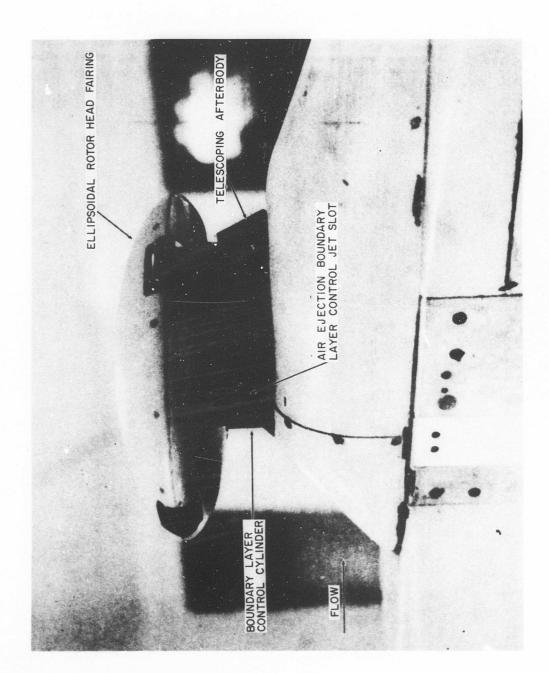


Figure 4. Rotor Head With the Cap Fairing (Configuration FHC).



Rotor Head With the Ellipsoidal Fairing (Configuration FHf). Figure 5.

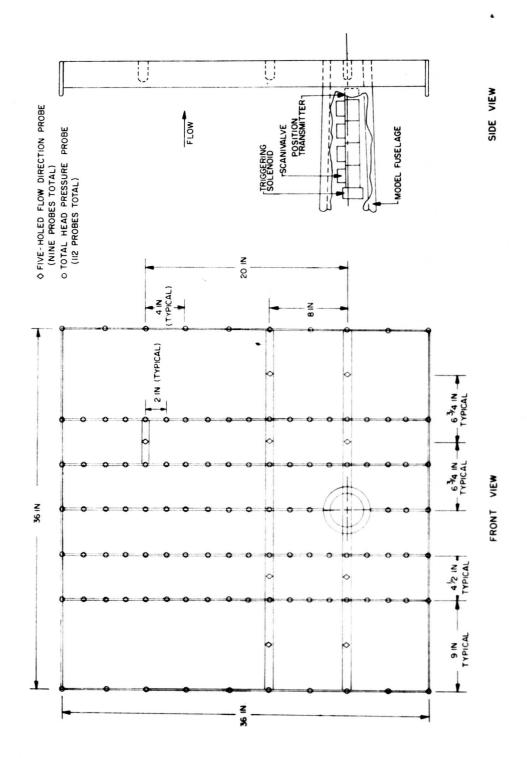


Figure 6. Schematic Drawing of the Wake Survey Rake.

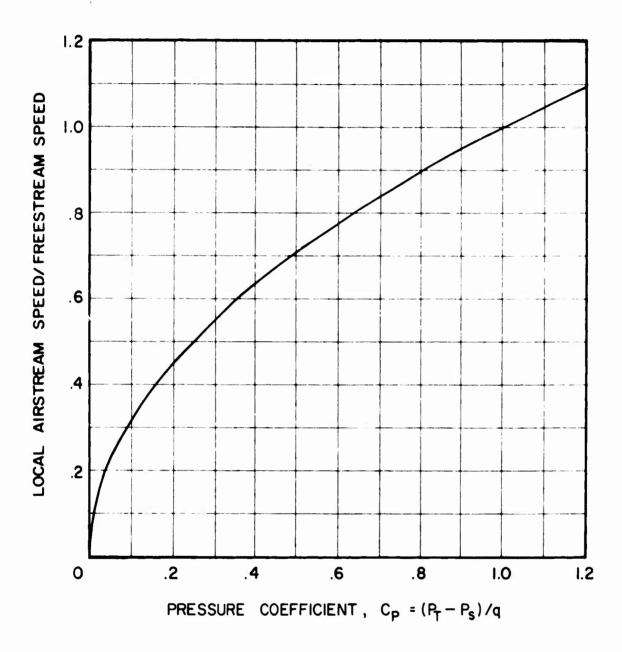
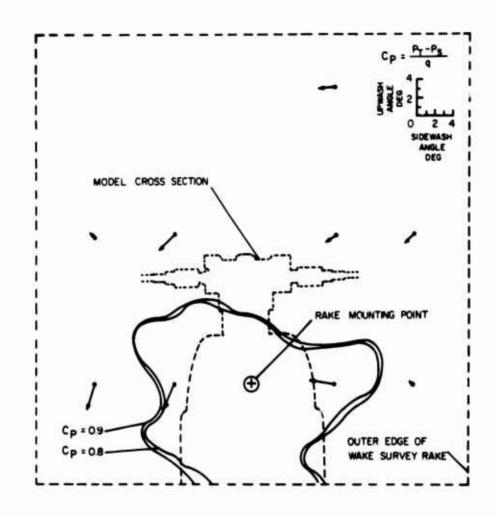
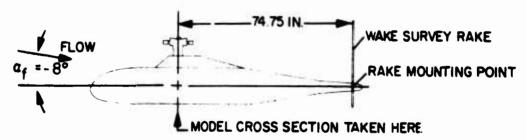


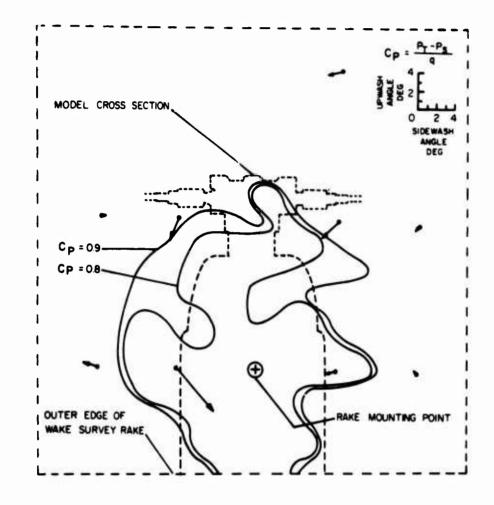
Figure 7. Local Airstream Speed Ratio Versus Pressure Coefficient.

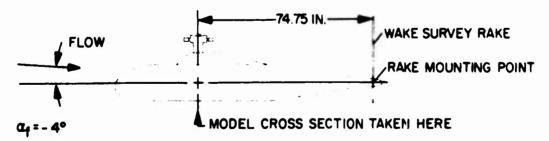




(a)
$$\alpha_{f} = -8^{\circ}$$

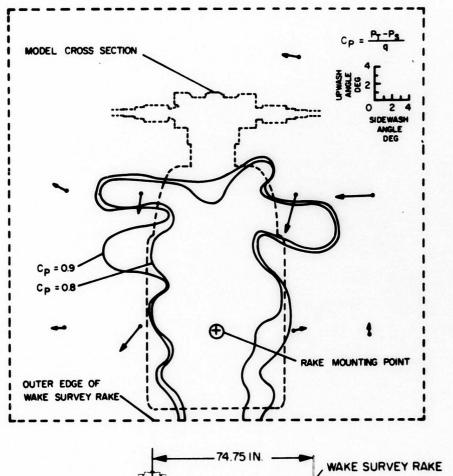
Figure 8. The Effect of Fuselage Angle of Attack on the Wake of the Helicopter Model, V_S = 200 Knots, ψ = 0°, μ * = 0.5, Configuration FH.





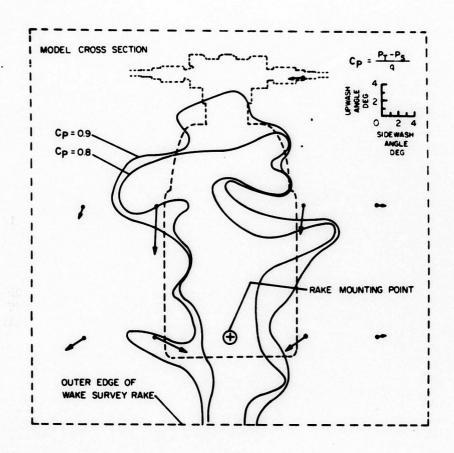
$$(b)$$
 $\alpha_{\mathbf{f}} = -4^{\circ}$

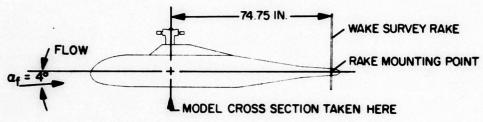
Figure 8. Continued



(c)
$$\alpha_f = 0^\circ$$

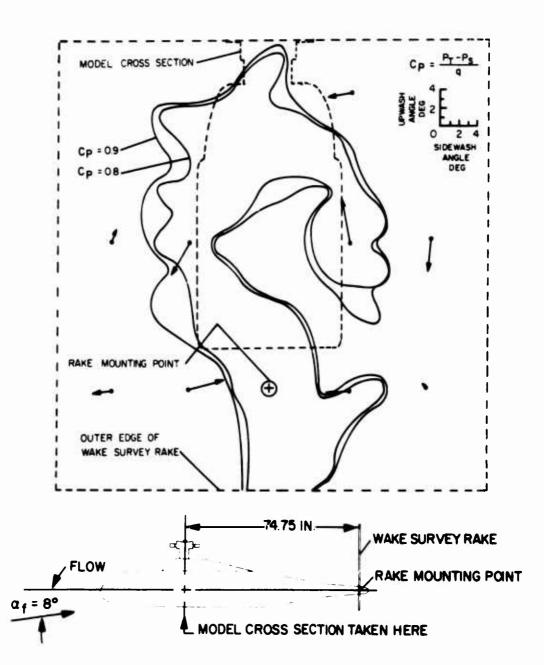
Figure 8. Continued





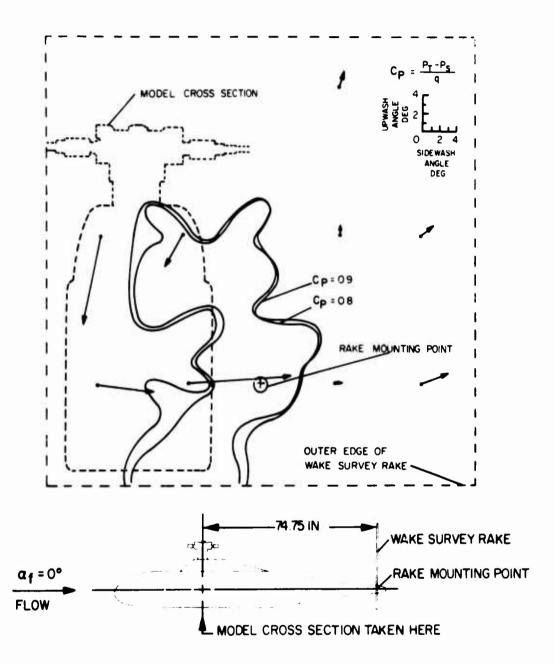
(d)
$$\alpha_f = 4^\circ$$

Figure 8 Continued.



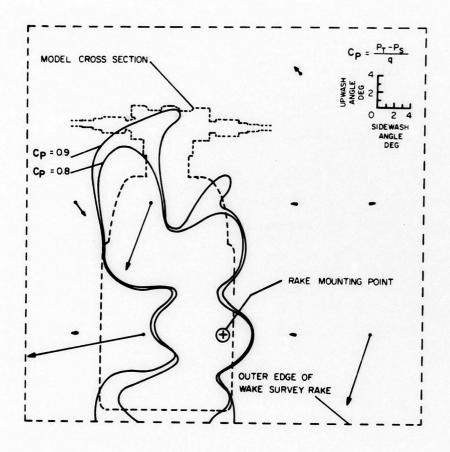
(e)
$$\alpha_f = 8^\circ$$

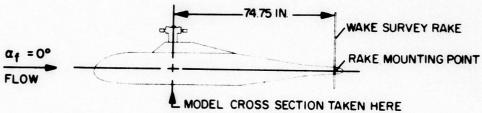
Figure 8. Concluded



(a)
$$\psi = 8^{\circ}$$

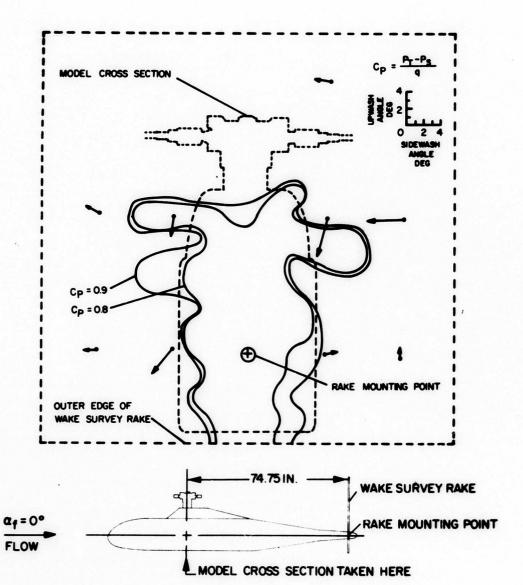
Figure 9. The Effect of Fuselage Yaw Angle on the Wake of the Helicopter Model, V_S = 200 Knots, α_f = 0°, μ^* = 0.5, Configuration FH.





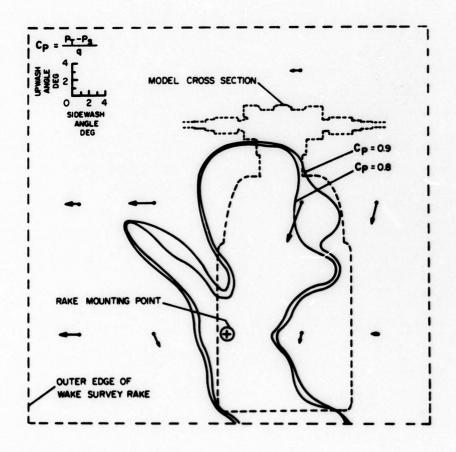
(b)
$$\psi = 4^{\circ}$$

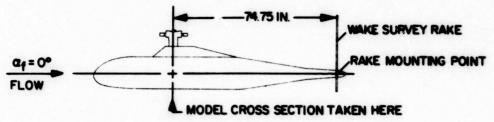
Figure 9. Continued



(c)
$$\psi = 0^{\circ}$$

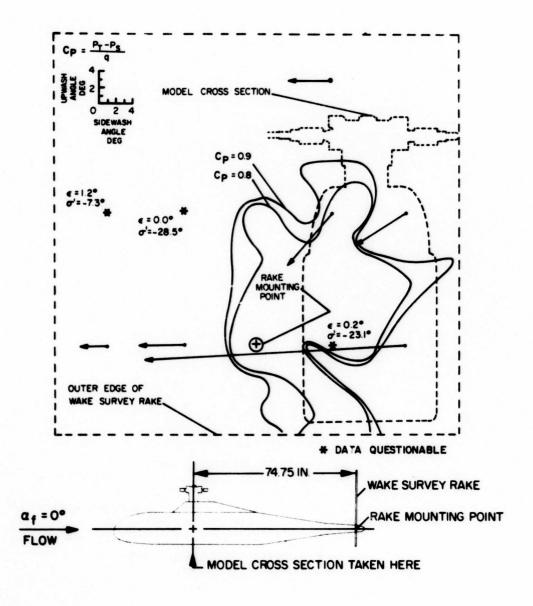
Figure 9. Continued





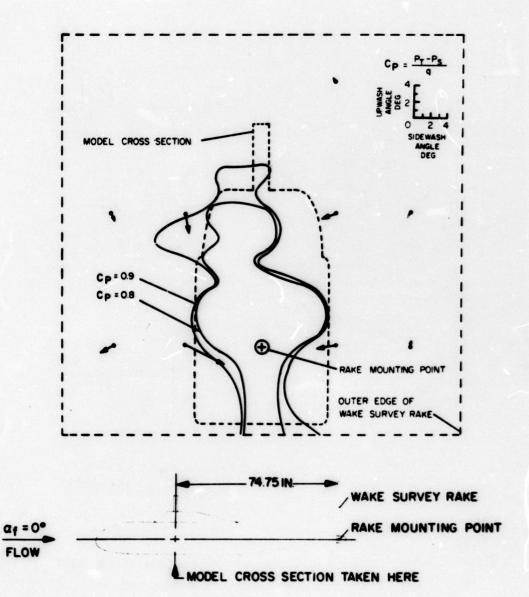
(a)
$$\psi = -4^{\circ}$$

Figue 9. Continued



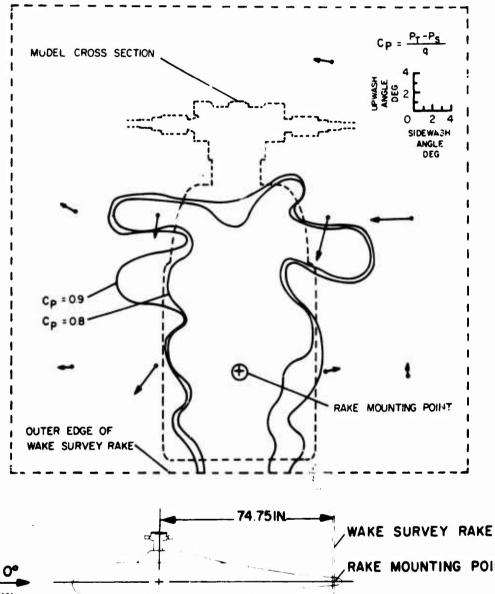
(e)
$$\psi = -8^{\circ}$$

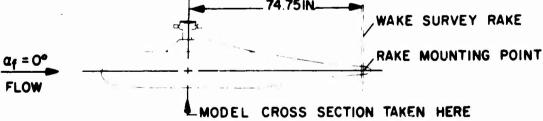
Figure 9. Concluded



(a) Bare Shaft (Configuration F)

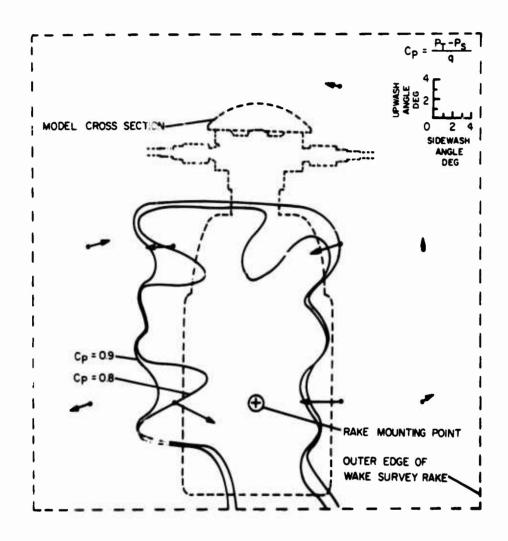
Figure 10. The Effect of Rotor Head Configuration In the Wake of the Helicopter Model, $V_S = 200 \text{ Knots}$, $\alpha_f = 0^{\circ}$, $\psi = 0^{\circ}$, $\mu = 0.5$.

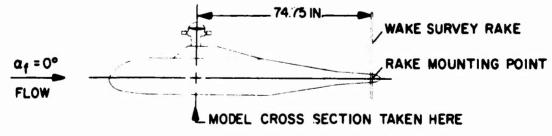




(b) Basic Rotor Head (Configuration FH)

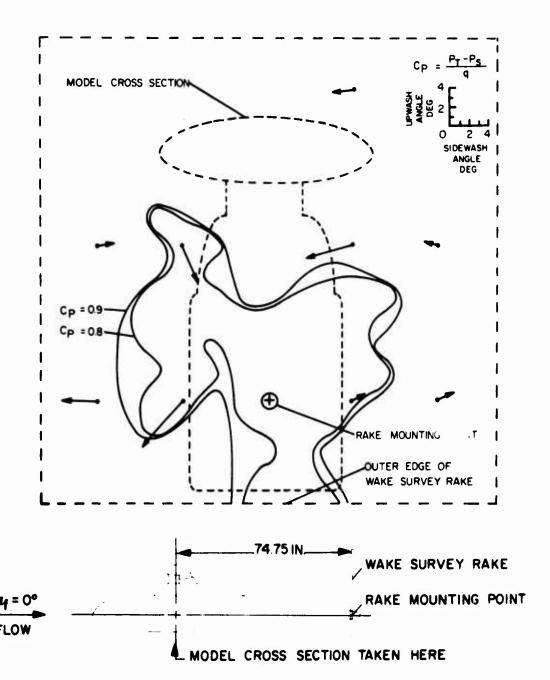
Figure 10. Continued





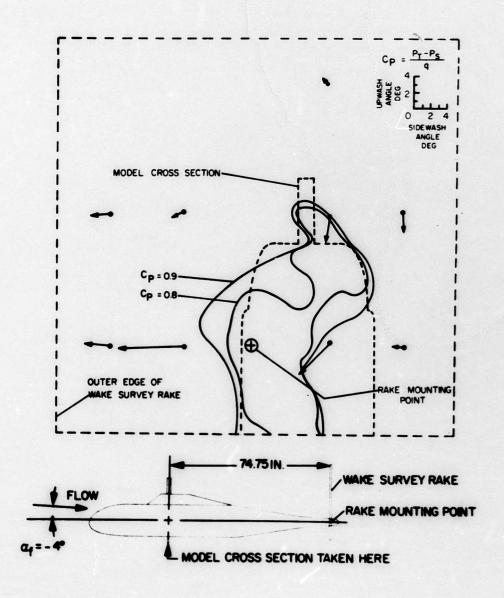
(c) Rotor Head With Cap Fairing (Configuration FHC)

Figure 10. Continued



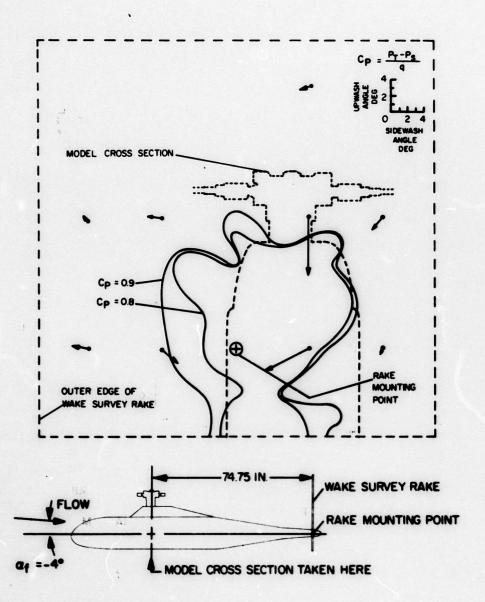
(d) Ellipsoidal Fairing (Configuration FHf)

Figure 10. Concluded



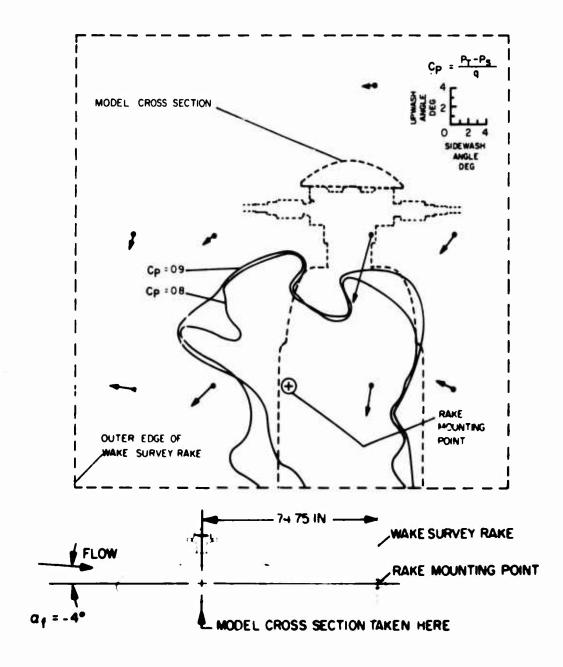
(a) Bare Shaft (Configuration F)

Figure 11. The Effect of Rotor Head Configuration on the Wake of the Helicopter Model, $V_S=200$ Knots, $\alpha_f=-4^\circ$, $\psi=-4^\circ$, $\mu^*=0.5$.



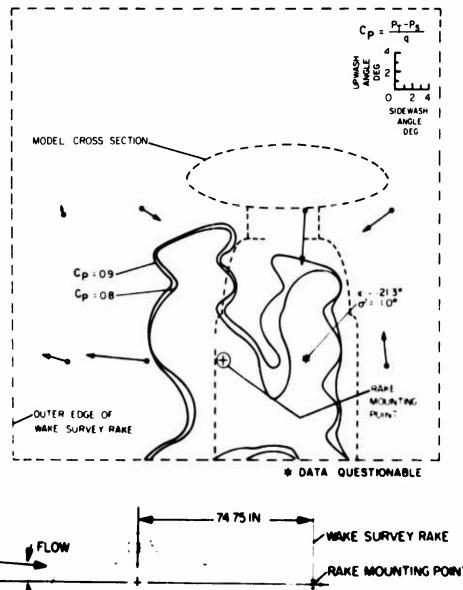
(b) Basic Rotor Head (Configuration FH)

Figure 11. Continued



(c) Rotor Head with Cap Fairing (Configuration FHC)

Figure 11. Continued



RAKE MOUNTING POINT MODEL CROSS SECTION TAKEN HERE

(d) Ellipsoidal Fairing (Configuration FHf)

Figure 11. Concluded

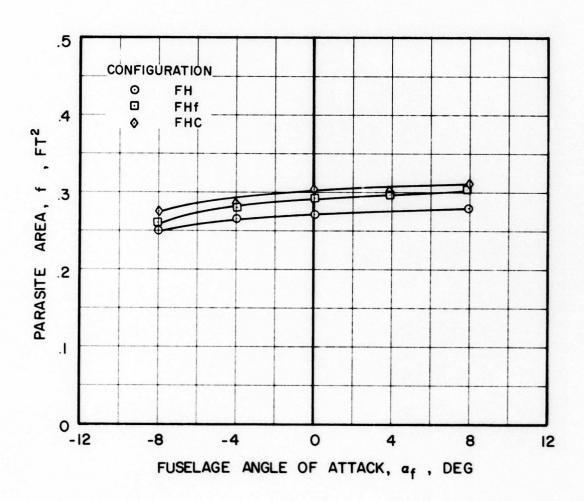
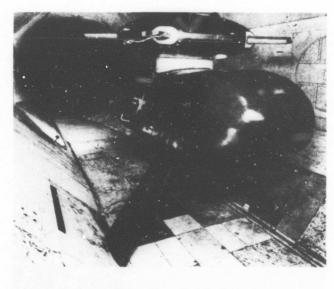


Figure 12. A Comparison of the Drag Characteristics of Three Rotor Head Configurations, $V_{\rm S}$ = 200 Knots, ψ = 0, $\mu^{\#}$ = 0.5.

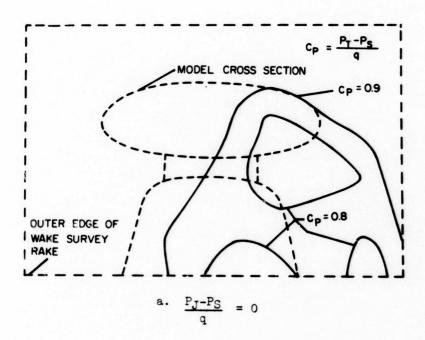


Rear View of Model



Front View of Model

Figure 13. Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Installed in the United Aircraft Research Laboratories 18-Foot Main Wind Tunnel.



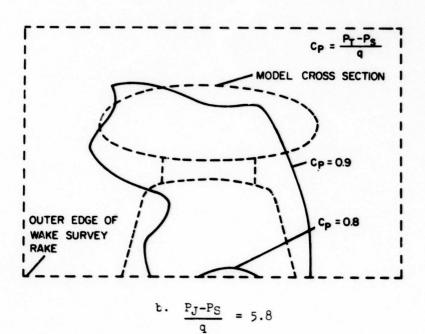
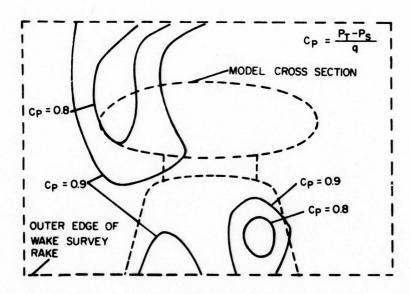


Figure 14. The Effect of Increasing Boundary Layer Control Jet Pressure Ratio on the Wake 38 Feet Behind the Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Model, V = 105 Knots, $\alpha_f = 0^\circ$, $\mu^* = 0.27$.



$$\frac{P_J - P_S}{q} = 7.7$$

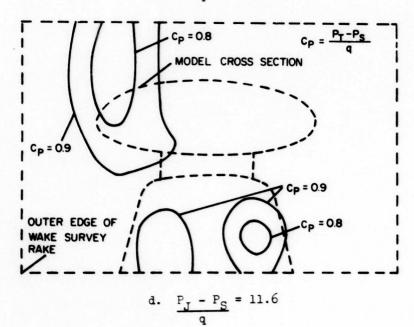
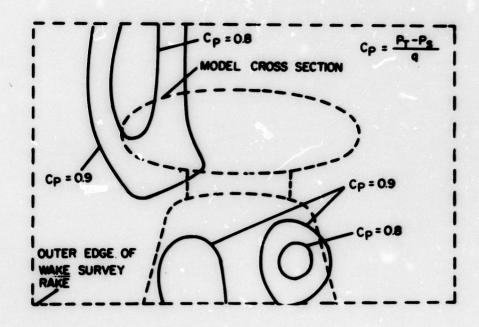


Figure 14. Continued



e.
$$\frac{P_J - P_S}{0} = 19.3$$

Figure 14. Concluded

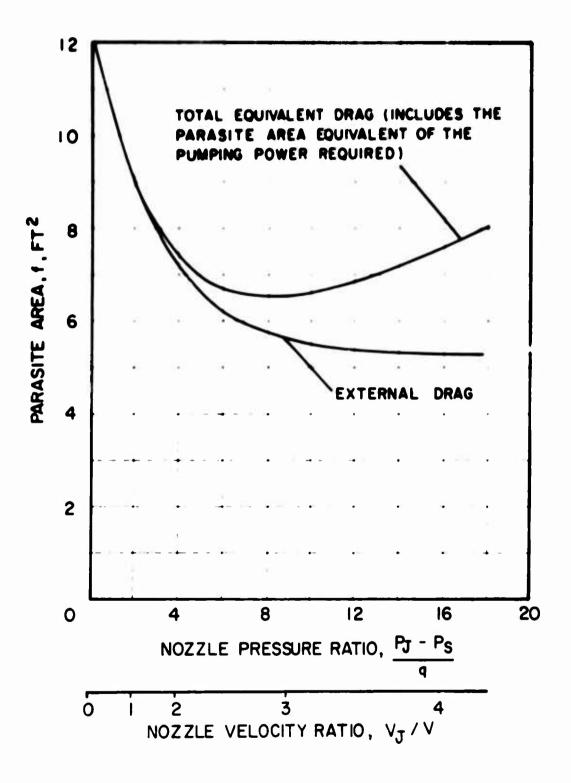


Figure 15. The Effect of Boundary Layer Control Jet Pressure Ratio on the Drag Characteristics of the Full-Scale Pylon-Ellipsoidal Rotor Head Fairing Model.

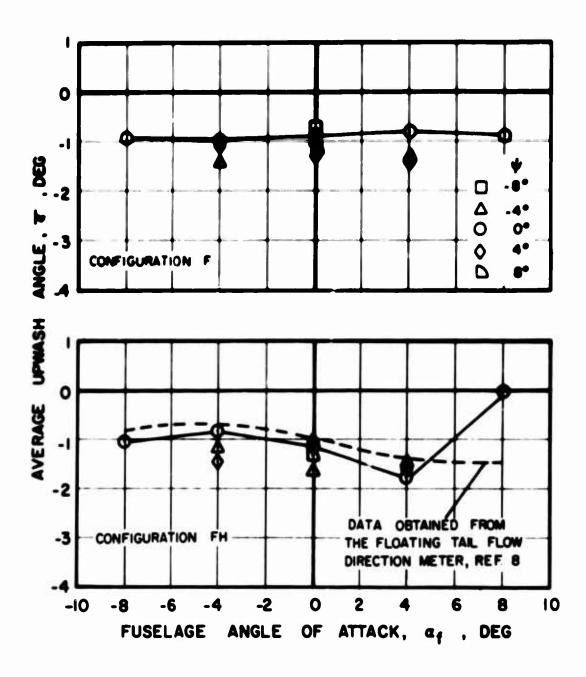


Figure 16. The Effect of Fuselage Angle of Attack on the Average Upwash Measured Behind the Helicopter Model for Various Rotor Head Configurations.

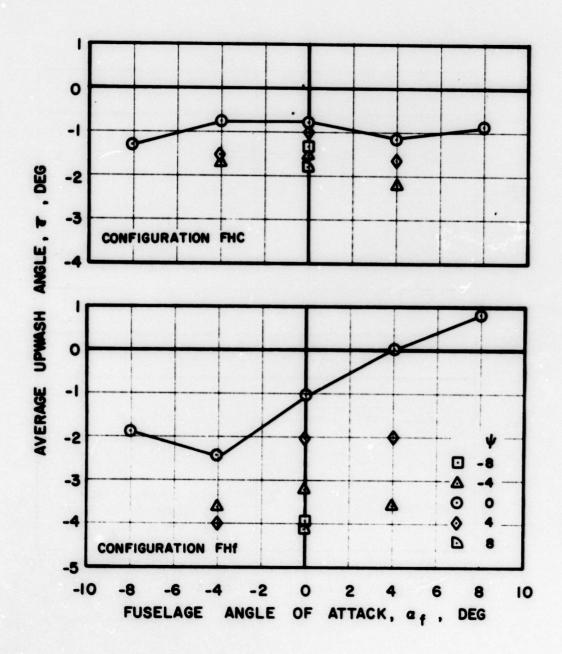


Figure 16. Concluded

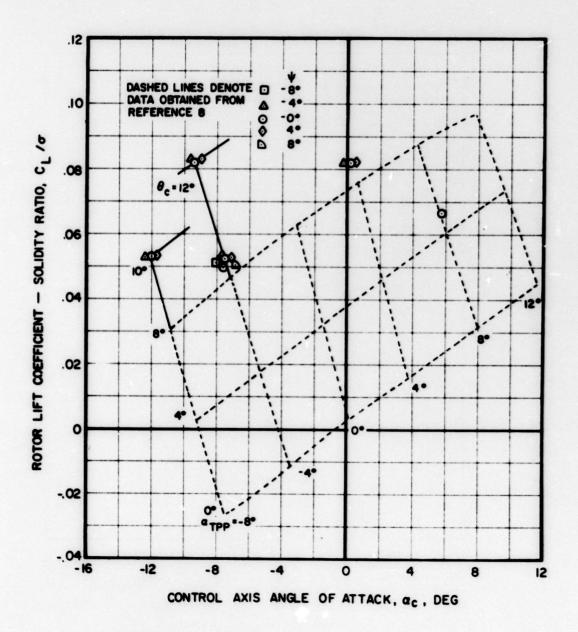


Figure 17. Rotor Performance Data, Including Comparative Data From Reference 8. V_S = 120 Knots, μ = 0.3, Configuration FHB.

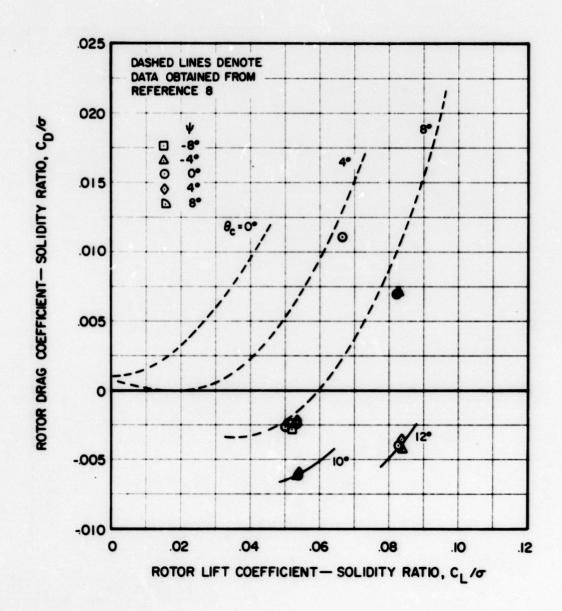


Figure 17. Continued

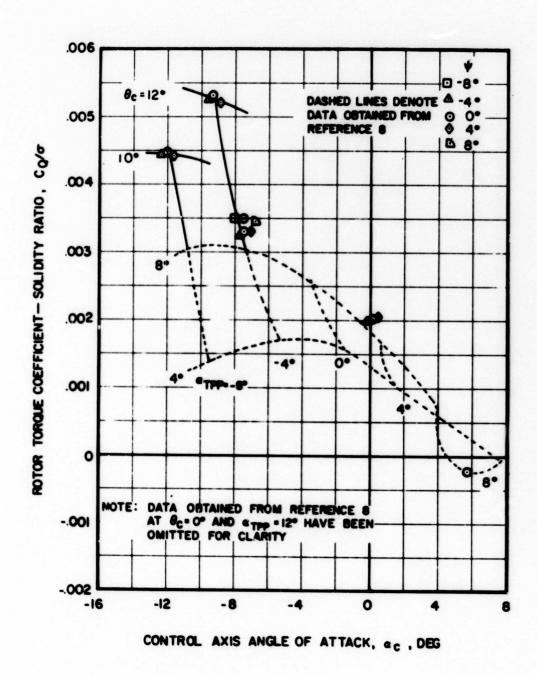


Figure 17. Concluded

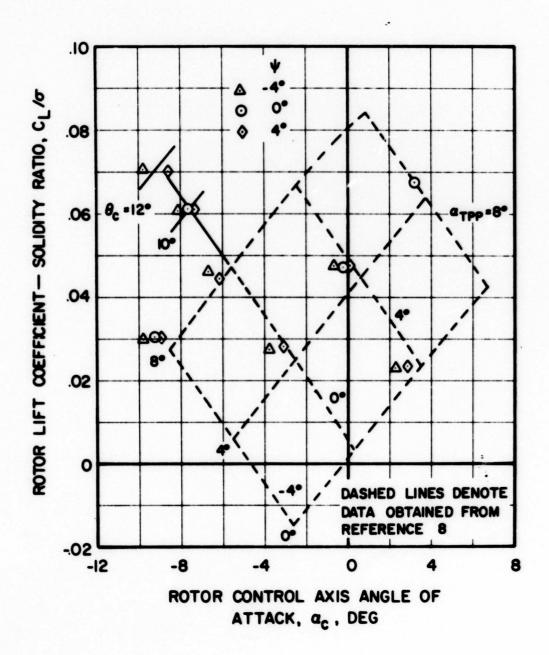


Figure 18. Rotor Performance Data, Including Comparative Data From Reference 8. $V_{\rm S}$ = 200 Knots, μ = 0.5, Configuration FHB.

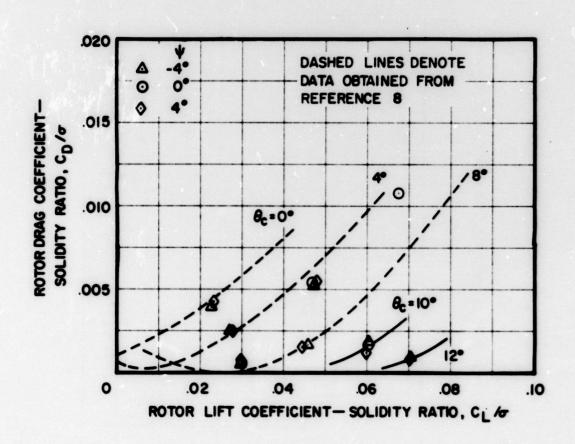


Figure 18. Continued

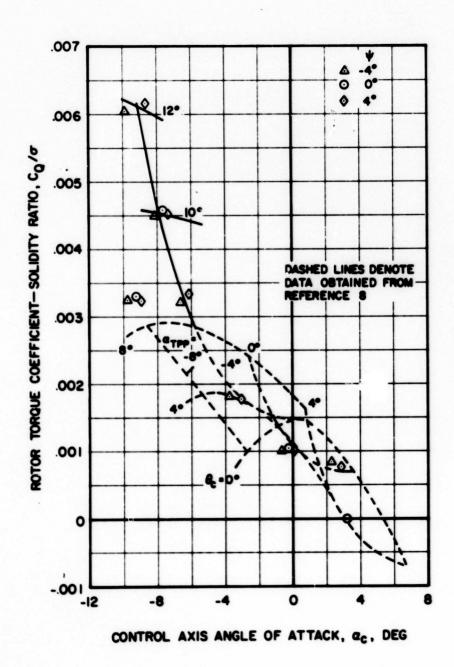


Figure 18. Concluded

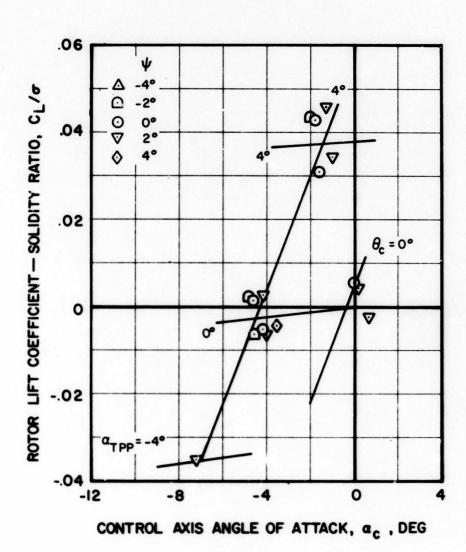


Figure 19. Rotor Lift Data. $V_{\rm S}$ = 250 Knots, μ = 1.0, Configuration FHB.

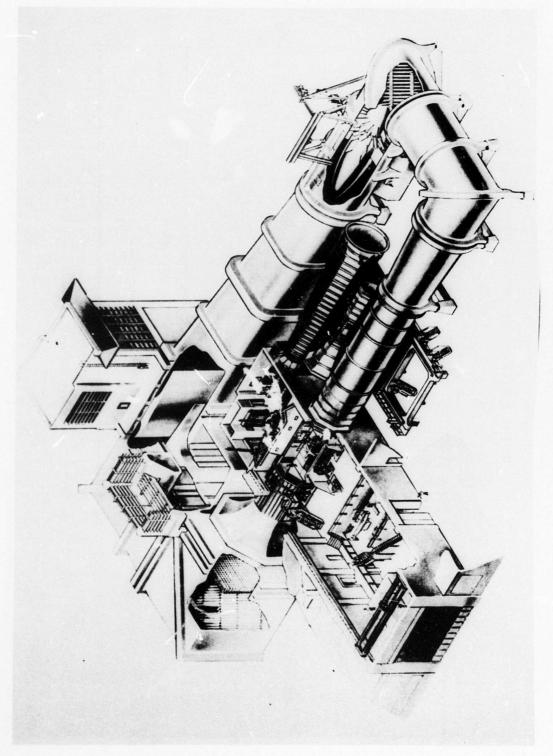


Figure 20. United Aircraft Research Laboratories 18-Foot Main Wind Tunnel.

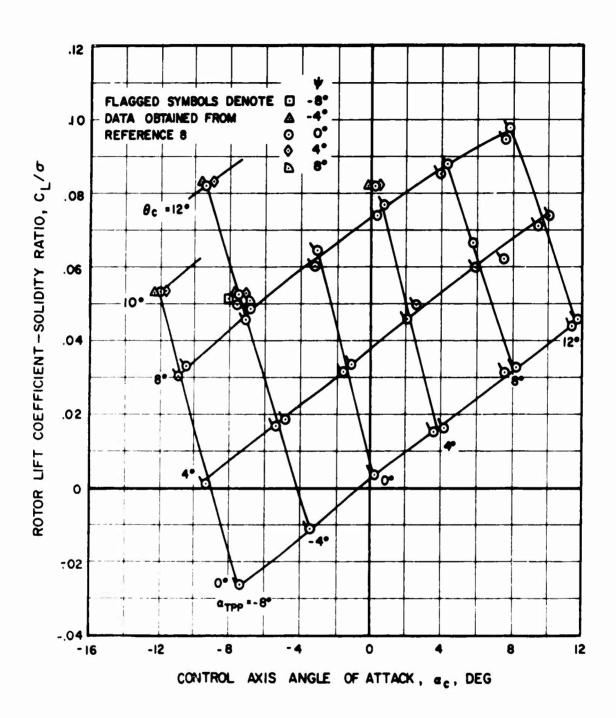


Figure 21. Sample Rotor Performance Data, Including Comparative Performance Data Obtained From Reference 8. $V_{\text{S}} = 120 \text{ Knots, } \mu = 0.3.$

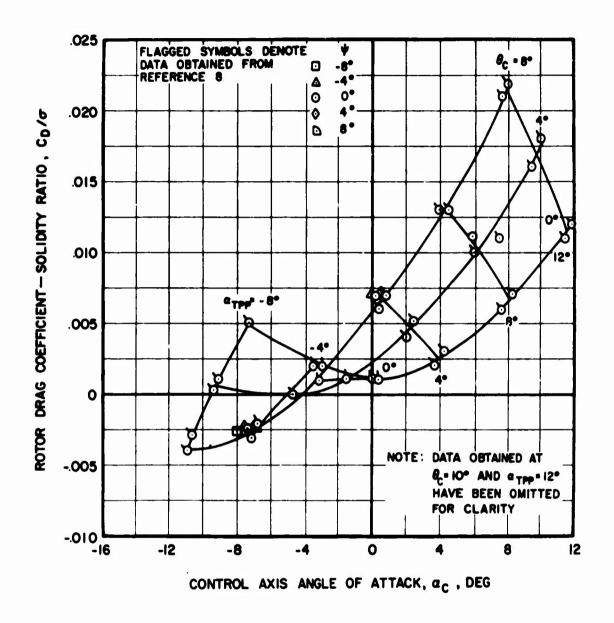


Figure 21. Continued

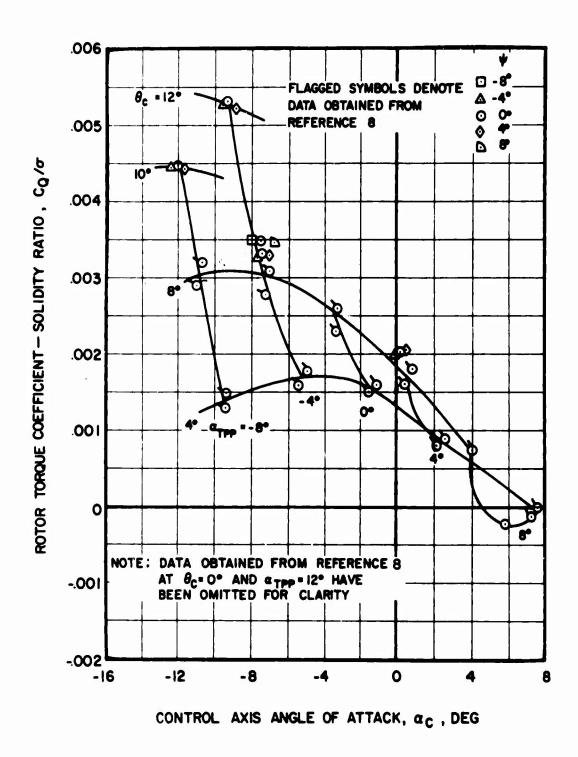


Figure 21. Concluded

TABLE I. SUMMARY OF ROTOR OPERATING CONDITIONS

V, Knots	V _s , Knots	Approximate μ,μ*	N, rpm
60	120	0.3	742
100	200	0.5	710
125	250	1.0	447
150	300	1.0	529
105**	105**	.27**	205**

^{**} These operating conditions are for the full scale data, Reference 1.

*	TABLE II. SUMMARY OF MODEL CONFIGURATIONS
Designation	Description of Model Configuration
F	Fuselage with no rotor head attached but with the rotor shaft protruding
FH	Fuselage with the rotor head attached
FHC	Fuselage with the rotor head and the "car" rotor head fairing attached
FHf	Fuselage with the rotor head and the ellipsoidal rotor head fairing attached
FHB	FH with rotor blades
FHBf	FHf with rotor blades

p = 0.9 CONTOURS FOR IGURATIONS AT TWO	P = 0.9 Contour	$\alpha_{\rm f} = -4.0^{\circ}, \psi = -4.0^{\circ}$	1.25 ft ² (71% FH)	1.76 ft ² (100% of FH)	1.90 ft ² (108% of FH)	1.50 ft ² (85% of Fii)
- Areas enclosed by the $c_{\rm p}$ = 0.9 contours for various rotor head configurations at two fuselage attitudes	Area Enclosed by the ${\tt C_P}$ = 0.9 Contour	$\alpha_{\rm f} = 0.0^{\circ}, \ \psi = 0.0^{\circ}$	1.30 ft ² (69% of FH)	1.88 ft ² (100% of FH)	2.22 ft ² (118% of FH)	2.09 ft ² (111% of FH)
TABLE III.		Configuration	ſr,	FH	FHC	FHf

	TABLE	IV. DATA RUN	SUMMARY	
Configuration	Simulated Forward Speed, Knots	Wake Survey Data Run Number	Rotor Performance Data Run Number	Blade Stress Data Run Number
F	120	34	34	-
	200	35	35	-
	300	36	3 6	-
FH	120	-	87	-
	200	7	87	-
	300	8	87	-
FHC	120	10	88	-
	200	11	88	-
	300	12	88	-
FHf	120	21	89	-
	200	22	89	-
	300	26	89	-
FHB	120	14,15	61	61
	200	16	62	62
	250	41	41	41
FHBf	120	28,29,30	29,30	29,30
	200	31	31	31
	250	33	33	33

APPENDIX II WAKE SURVEY DATA TABLES

		TABLE	7.	∢ ⊢	17) 12-1	COEFFICIENTS AND VARIOUS F	AND		DIRECTIONS ATTITUDES,	AT	THREE		
	RUN 34 V=60	POINT S KNOTS Q	ALPHA=		DEG PSI=0 DEG CONFIGURATION F	و		RUN 34 V= 60.	POINT 6 KNJTS 9	ALPHA=-8.0 = 11.4 PSF.		DEG PSI=0 DEG CONFIGURATION F	
%	86.	ŧ.	1.03	.93	.95	1.07	₹.	76.	8.	8.	8.	36.	.93
	*	86.	%.	96.	-			16.	86.	8.	8.	٦. •	
96.	96.	.93	96.	10.1	60.	1.06	. 92	26.	16.	8.	96.	1.06	.91
	56.	1.00	96.	1.01	26.			8.	6.	3.	٤.	1.07	
96.	ŧ.	76.	96.	1.09	*6.	1.00	8.	.97	1.02	%.	99.	1.08	8.
	.93	<i>*</i> .	16.	1.05	.97			96.	1.01	96.	.92	1.03	
ē.	96.	.03	86.	1.04	1.02	.95	.97	86.	96.	1.00	.93	1.02	<i>\$</i> .
	96.	; -{-;	.92	86.	1.08		<u>L</u>	66.	٠. چ.	1.01	*6.	96.	
.93	.93	06.	.65	.95	1.07		.97	.93	*6.	1.00	96.	.91	. 96.
J	1.0,	.60	*0.	*. .]	1.06		-1.2	36.	-1.6	1.01	1.05	 	•
۶.	.92	.7.	.76	.92	1.02	56.		1.02	1.02	1.01	1.09	*	1.02
	86	.,	.59	86.	66.			.97	1.00	**.	1.02	.95	
1.00	96.	ð.	*S*	47	.95	*	\$.	.87	.79	-85	.50	1.12	1.08
	96.	-1.6	RAKE MOUNTING	L	2	0		1.10	.82	RAKE MOUNTING	4	<u> </u>	- <u></u>
	10.1	2, 6.5 20, 6.5	Polivi	. S. 1	.93		1.03) 	5.6	Por N	. 8.	1.12	3.
1.05	66.	99	.36	96.	66.	1.02	1.00	\$	84.	.78	66.	1.05	1.07
	56.	۲۰.	.62	.80	1.09			76.	*9.	.53	.68	1.02	
1.01	96.	86.	.60	.95	1.06	1.07	96.	1.00	.76	.27	.82	96.	1.01
NUMEERS		IN TABLE ARE PRESSURE COEFF	_	CIENTS Cp .	2		NUMBERS	IN TABLE AR	ARE PRESSURE	COEFFICIENTS CP *	ENTS CP . L	2-1-P	
UPPER =	VERTICAL DE HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOUGHER = HORIZONTAL UISPLACEMENT, POSITIVE FOR FLOW F TO RIGHT LOOKING AFT.	W DIRECTION 17 POSITIVE POSITIVE	FOR UP	IN DEGREES. R UPWASH FOR FLOW FROM LEFT	EFT PLANE	NUMBERS UPPER = 1 LOWER = 1	WUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. LOWER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW F OR RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEME T.	W DIRECTION POSITIVE	N IN DEGR	IN BOXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PLANE LOOKING AFT.	T SURE:
NOTE- 1	ABLE 15 SEE	NOTE- TABLE IS SEEN FROM THE MODEL NOSE, LOOKING AFT.	100			TAGE TYPE	NOTE- TAL	TABLE IS SEEN FROM THE FLOW NOSE, LOOKING AFT.	FROM THE	9			PACE THE POST

1	RUN 34 V= 60	POINT	7 ALPHA=-4.0 q= 11.4 PSF.	۹.	DEG PSI=0 C	. 050		RUN 34	POINT	8 ALPHA= 4 q= 11.4 PSF	∘ .	DEG PSI=0 DEG	
	.95	*6	66.	.95	96.	1.09	96.	06.	*	.93	86.	1.04	26.
	66.	96.	96.	L	Г			.92	1.00	66.	26.	1.08	
	76.	.97	96.	1.11	•	1.05	86.	.97	1.01	16.	26.	1.08	6.
	96.	96.	*	1.10	1.77			%.	.75	%	.,	1.06	
	76.	.97	.92	1.04	1.14	1.00	8.	96.	.75	.97	*6.	1.03	.95
	1.01	96.	%	1.01	1.14		_	8.	*	98.	96.	1.00	
	1.00	.97	.97	.95	1.13	76.	.97	%.	8.	1.02	96.	.9 5	8.
L,	1.00	6.	16.	1.00	11:11			ا جو ا	₩. •••	99.	\$6.	.92	- [;
<u> </u>	66.	.69	16.	1.00	1.06	1.01	8.	.92	66.	.70	1.04	06.	1.05
	.95 L		18.	1.0.1	1.04		J 		*. -	1.05	86.	٠ و.	<u>-</u>
	96.	•56	59.	1.00	1.00	1.00	.97	%	96.	1.19	1.08	.93	1.11
	.95	.74	.39	1.03	1.01			1.04	. 95	09.	1.06	8.	_
	.76	.58	99.	.97	1.01	1.03	.93	1.00	.58	.75	1.02	1.06	1.06
7 '	1.05	.98	RAKE	1.13	11:01	-[L.`	1.01	. i.	RAKE	1.08	71.12	ſ:
	1.09		2 2 3 3	1.13	1.06	1.10	1.07	76.	1.07	₹ •	.76	2.0	1.05
	ો .ક.	1.7.	L N I O	1.10	1.12	e]	<u></u>	10.1	6 .	INIO.		01.1	·}-
	96.	.63		1.02	1.15	1.17	1.01	.97	69.	*.	.55	1.05	1.05
	.95	96.	.58	1.02	1.15			8.	1.02	.24	9	6.	
	.93	*	89.	06.	1.10	1.13	<i>š</i> .	66.	.77	.87	1.00	8.	۶.
2	NUMBERS IN TABLE ARE PRESSURE COEFF	E PHESSURI	COEFFICIENTS	3	ñ-		NUMBERS	NUMBERS IN TABLE AF	RE PRESSUR	ARE PRESSURE COEFFICIENTS CA		5	<u> </u>
SIIIE	NUMBERS IN BOXES IND UPPER = VERTICAL DIS LOWER = HORIZONIAL D TO RIGHT LOOKING AFT	DICATE FLO SPLACEMEN' DISPLACEME T.	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	FOR UPWI		LEFT SURVEY	NUMBERS UPPER = LOSER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	OICATE FLISPLACENEN UISPLACEMEN	Ow DIRECTION OF POSITIVE	DN IN DEGR		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
¥.	NOTE- TABLE IS SEEN	IS SEEN FROM THE FLOW	TOT			POLTTER.	MOTE - T	TABLE 15 SEE!	15 SEEN FROM THE PLOY	-			1

	RUN 34 V=6.0	POINT	9 ALPHA= 6.0 9= 11.4 PSF.		DEG PSI=0 DI	DE6		RUN 3	* POINT I	10 ALPHA= 4.0 C	CONFIG	DEG PSI=-4.0 CONFIGURATION	PEG
8.	96.	96.	16.	96.	1.00	1.01	9	86.	ě.	76.	6 .	1.03	1.05
	1.00	.82	.93	.,	֓֞֝֞֜֜֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓			%.	8.	86.	٤.	1.0	
1.00	5 .	•	64.	.93	1.09	<i>š</i> .	86.	86.	٤.	.93	1.07	1.15	1.01
	96.	8.	**.	1.01	11.1			8.	ê.	%.	<u>.</u>	:: }-	
1.02	1.02	1.07	.50	.92	1.09	₹.	1.01	. 9 .	1.00	.97	%.	1:1	8 .
	96.	1.08	*	.95	1.14			9 .	1.06	8 6.	1.01	1.13	
1.04	1.05	.6.	9.	*6.	1.06	96.	8.	9 .	.82	. 60	1.00	1.09	1.01
	, , ,	٤.	1.03	₹.	11:1	-[;		%: 	۶. - آ	. 83	1.01	1.04	- 5
1.01	1.03	. 6.	1.21	66.	96.	6.	1.01	8.	ē.	\$6.	1.09	96.	1.01
	1.00		. 36	1.24	8 .		<u>J</u>	8.	ş .	17.	3	*. }-	_
1.06	1.05	8.	.62	1.06	96.	1.02	1.00	ŧ	1.02	.29	1.16	1.05	1.04
	98.	8.	*9.	%	ŧ.			17.	.78	07.	1.17	8.	
1.02	.97	£#.	9.	ě.	1.00	1.07	1.02	%.	99.	3 .	1.18	1.07	1.13
1.17	1.03	7.1 .62 .63	RAKE MOUNTING	84.	6.6	5.9	1.14	<u>s</u> ; s.	1.01	MOUNTING	1.00	2.5	4.2
	*. *.	رة. الم	POINT	- 69:	1.14		<u></u>]].]-	76.	POINT	il 8:	61.13	7]_
1.05	%	99.	.57	.76	11:11	1.15	1.05	.78	%	1:11	1.00	1:1	1.12
	1.02	.7*	.13	.67	1111			6.	1.07	.62	1.00	1.12	
1.01	6.		14.	1.04	1.06	1.00	6.	ŧ.	6.	10.	8.	==	1.12
UMBERS	NUMBERS IN TABLE ARE		PHESSURE COEFFICIENTS Cp . Pr.P.	NTS Cp . P	1		NUMBERS	IN TABLE A	ARE PRESSURE	E COEFFICIENTS C.	NTS Co. PT	9	-
PPER :	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPAASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	NDICATE FLO ISPLACEMENT DISPLACEM	DW DIRECTIO F, POSITIVE ENT, POSITI	FOR UPILA	LEES. SH FROM LE	LEFT BLANE	UPPER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	INDICATE FL SISPLACEMEN DISPLACEM	IN BOXES INDICATE FLOW DIRECTION IN DEGREES, VERTICAL DISPLACEMENT, POSITIVE FOR UPASA HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LOOKING AFT.	FOR UP	EES. SH FROM L	LEFT SUREY
OTE- 1	MOTE - TARLE IS SEEN	MOS STATE MOSS IN	100			-	MOTE. TA	7441 6 16 666	SEEN GOOM THE				-

	RUN 34	POINT 1	1 ALPHA=-4.0		DEG PSI=-4.0 D	DE 6		RUN 34 V=60.	F POINT 12 KNOTS 4 =	ALPHY=-8.0 = 11.4 PSF.	ODEG P	DEG PSI=-4.0 DEG	EG	
.97	.90	96.	56.	66.	1.06	6 .	96.	86.	96.	96.	66.	.92	-	88
	6.	1.01	.97	.6.	- - - - -			*	۶.	1.00	.6.	.e. ⊥		
96.	•6.	%.	.95	6.	1.06	* .	٠6.	%	\$.	1.01	.88	19:		96.
		.97	.97	 	1.06			*6.	8.	1.02	§.	-5-4 -79		
96.	6 .	.97	96.	8.	1.04	%.	۶۰.	.92	6.	1.02	96.	.82		96.
	.95	<i>ā</i> .	6.	.95	1.01			.93	6.	66.	.6.	.62		
96.	.95	.97	6.	1.00	%.	1.00	.92	*	8.	1.00	*6.	. 8 5		8
	•	٠٠. - []	96.	1.06	-%. -~.		L	1.9.	1:01	96.	6.	•		
.97	99.	1.00	.97	1.08	*·	1.07	.9.	.92	66.	\$6.	90.	.6.	3.	8
_	3.	٠٠.	\$6.	<u>.</u>	%. 		-	_e.	1.0	6.	<u>.</u>	*. 	-	
*6.	18.	1.01	%	1.10	56.	1.10	.92	96.	6.	1.00	.78	.95		.8
	6	ş.	%	1.06	1.01			.93	.92	%	.	%		
16.		1.01	į	96.	1.09	1.10	ŧ.	* .	96.	1.08	10.	.90	_	.85
	<u>*</u>	ş.	RAKE	%.	1:0		Ŀ	.80	-	RAKE	.05	• ·	-[
1.06	.72	65.	Φ,	.90	1.00	1.06	1.05	8		2 3 0 1	8.	. 7.7	2.7-	.80
_	s.	* *		26.	1.0		••••	٦%.	* 	MION	*.	٤.	-1:3	
1.01	1.07	*		.97	1.02	1.03	1.04	4.		.53	6.	.62		.83
	1.06	1.	.62	.97	1.02			8.	\$:	0.	•	.63		
36.	6.	99.	ě	1.01	.9	96.	.9.	9.	04.	1.00	%			
HERS	NUMBERS IN TABLE ARE P		RESSURE COEFFICIENTS Cp . Pr.P.	NTS Cp .	g.		NUMBERS	IN TABLE AR	ARE PRESSURE COEFFICIENTS	COEFFICIE	NTS Co. Pro	1	1	
ER SER	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = HORIZONTAL DISP TO RIGHT LOOKING AFT.	INDICATE FLO DISPLACEMENT L DISPLACEMENT	ATE FLOW DIRECTION IN DEGREES. ACEMENT, POSITIVE FOR UPWASH PLACEMENT, POSITIVE FOR FLOW FROM	FOR UP	ASH LOW FROM L	LEFT PARKY	UPPER = 1	FRTICAL DI	MAMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOBER = HOSTEONTAL DISPLACEMENT. POSITIVE FOR FLOW FROM TO BILLY LOBERT AFT.	POSITIVE	FOR UPWA	EES.	LEFT PARTY	*
E- 1	NOTE- TABLE IS SEEN FR	EN FROM THE FLOW	To.		1	AS	NOTE - TAE	TABLE IS SEEN FROM	N FROM THE PLON	5			**	E

	RUN 34	PUINT	13 ALPHA=-8.0		DEG PSI= 4.0 DEG CONFIGURATION F			RUN 34 V=60.	POINT 14 KNOTS 9	ALPHA=-4 = 11.4 PSF	.0 DEG PSI= 4.0	1= 4.0 DEG	و
96.	46.	8.	8.	16.	06.	16.	76.	1.00	₹.	8.	.95	.83	1.01
	.6.	96.	76.		٠.			76.	76.	\$6.	8.	3.	
70.	76.	36.	10.1	.89	18.	1.00	· ·	36.	66.	96.	66.	78.	1.00
	36.	8.	96.	.e				96.	96.	* .	<u>:</u>	÷	_
20.	.93	.97	96.	%.	.82	66.	% •	26.	86.	86.	.97	.89	96.
	16.	96.	96.	.96	.83			%.	86.	96.	06.	96.	
₹.	**6*	.95	56.	.93	.85	₹.	€.	56.	1.00	66.	.85	1.04	.93
L	.92	٠. ۲	.95	06.	68.			10.1	10.1	• 95	.87	66.	<u> </u>
- ma.	06.	%.	* .	.89	8.	26.	ð.	96.	66.	1.00		£.	6.4
	·} · · · ·	\$. ?]_	96.		76.		<u>"</u>]		*. 	96.	۶.	1.02	-
20.	\$6.		.92	.82	æ.	26.	ê.	1.00	66.	76.	.93	.47	.82
	36.	66.	.92	19.	. 8 5			1.01	1.02	.60	1.00	.35	
ě.	ŧ.	26.	86.	.72	19.	08.	1.00	76.	.6.	٤٠.	¿#•	.87	.87
L	56.	٠،٠	RAKE	769.	.39		L'	66.	₹. -	RAKE	.55	.79	[·
1.67	96.	-9.7	MOUNT ING	. 30	9.	97.	1.12	.97	76.	Φ.	65.	68.	*8.
<u>;</u>	ا ا ا ا ا	88.	POINT	٦ .69.	**. **.		<u>'</u>	6. 	٠٠. 			.84	<u>;</u> -
1.00	1.02	8.	.53	.53	06.	18.	1.07	86.	96.	84.	.78	06.	68.
	1.00	1.01	*.	1.02	.82			76.	76.	. 42	.63	-92	
ê.	66.	÷.	.41	19:	.63	.80	1.02	f.	96.	64.	• 50	1.03	.93
นบางยิสร 1	NUMBERS IN TABLE ARE	AL PRESSURE	E COEFFICIE	COEFFICIENTS CP : PI-PS	4		NUMBERS	IN TABLE AME PHESSURE COEFFICIENTS G. PTPS	E PIKESSURE	COEFFICIE	115 G . 1	- 1 - -	
NUMBERS 1 UPPER = V	NUMBERS IN BOXES INC UPPER = VENTICAL DIS LONER = NONIZONTAL I	OICATE FLISPLACEMEN	INDREES IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = "EMTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO DETAIL TOWARD AFT ARE TOWARD AFT TO DETAIL TOWARD AFT.	FOR UPAN	SH FROM LEF	LEFT SURVEY	NUMBERS OPPER = LUMER =	UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOARE = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO MANUAL DISPLACEMENT, POSITIVE FOR FLOW FROM THE FORT LOAR MET.	SPLACEMENT UISPLACEME	DIRECTION POSITIVE	FOR UPWAS	SH FROM LE	LEFT SURVEY
HOTE- TABLE IS SEEN	16 15 566	FR. W. THE FLOW	FLOW			PAKE		MOIS STA MOOD NOWS OF STREET	CO.N. THE		/		RAKE

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.10	POINT IS ALPHA= 4.0 DEG PSI= 4.0 DEG 1.01	1.5 1.00 1.10 1.10 1.10 1.10 1.10 1.10	RUN 34 POINT 16 ALPHA: .0 DEG PSI=-8.0 DEG V= 60. KNOTS 9 = 11.4 PSF. CONFIGURATION F	96 1.00 99 1.12	.95 1.00 .97 1.02	96. 1.01 1.00 97 2 1.06 .96	.99 1.01 99 1.04	.95 .98 1.00 1.02 1.01 1.01	.95 1.00 1.04 1.03 .95	40.1 46. 11.1 86. 96. 96. P. 1.04	95 1.00 1.00 1.09 95	1.03 -3.2 1.06 1.00 1.10 .2 .94	1.12 19. 19. 1.12	1.03 .78 .58 1.02 1.05 1.09	.61 .48 .57 1.05 1.11	.99 1.11 1.10 95 1.14 1.10	.8896 RAKE .91 1.08	.96 1.00 00.196 1.07	se	.98 .16 1.08 1.02 1.01 1.02	.71 .66 1.02 1.04 .95	.62 .76 .81 1.09 .95 1.00	I TABLE ARE PRESSURE COEFFICIENTS Co. PTPS	UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO PROMI DEFT SUMEY TO RIGHT LOOKING AFT.
2 1 . 5 . 5 . 5 . 5 . 5 . 5 . 5 . 5 . 5 .	2 6 5 1 1 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2 1 2 6 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		<u> </u>							1	٠7.					<u>L</u>	1.06					NUMBERS IN	
	34 POINT IS ALPHA= 4.0 DEE 1.01 1.01 1.03 .94 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .99 .94 .95 .95	3.4 1.02 3.4 POINT 15 ALPHAE 4.0 DE V= 60 KNU15 q = 11.4 FSF. CO 1.00 .99 .94 .99 .96 .99 .99 .99 .99 .99 .99 .99 .99										-		-		-		-		-				31
	34 POINT 15 50 KM015 4 1.01 1.03 1.03 1.06 3.0 1.06 3.0 1.06 3.0 1.01 1.01 1.01 1.01 1.01 1.01 1.01	1.00 1.00 1.00 1.00 1.01 1.00 1.01 1.02 1.02 1.03 1.02 1.03 1.03 1.03 1.04 1.02 1.04 1.02 1.04 1.01 1.04 1.01 1.04 1.01 1.04 1.01	6 PSI= 4.0 DEG NFIGURATION F							1.05	*.	%.	•. -				1.28	1.07	- c::-:	.57	£5.	1.04	SEGREES.	FLOW FROM LEFT PLANE

1.00 .96 .96 .1.00 .96 .96 .96 .1.00 1.00 .95 .99 .95 .99 .96 .96 .1.01 1.01 .99 .97 .99 .95 .99 .99 .99 .99 .99 .99 .99 .99		RUN 34	FOINT 17	7 ALPHA= .0	.0 DEG	DEG PSI=-4.0 DEG	9		RUN 34 V=60.	POINT 18	ALPHA= .0 0	.0 DEG P	DEG PSI= 4.0 DEG	
1.92 .92 .98 .97 .96 1.12 1.12 .96 .96 .99 .94 .94 .94 .94 .94 .99 .99 .99 .99	96.	.89	6.	.93	8.	1.11	*6.	96.	%:	1.00	%.	%.	1.07	96.
		.92	8.	.97	%.	7:::			86.	1.00	. 26.	_	11:1	
.94 .96 .96 .99	16.	%.	8.	ŧ.		N	96.	1.00	\$6.	8.	86.		1.14	96.
.95 .96 .95 .97 1.05 .99 .99 .99 .99 .99 .99 .99 .99 .99 .9		š .	96.	%.		9			1.00	86.	96.	,	1.10	
1.04	6 .	.93	96.	\$6.	.97	1.05	6.	1.01	66.	76.	86.	.97	1.10	8.
-1.4		%.	.93	1.00	1.02	1.01			76.	96.	76.	.92	1.09	
-1.4 .61 -4.3 .95 .94 1.11 .9 .95 -2 1.07 -4.5 .9 .96 -2.2 1.07 -4.5 .9 .96 1.07 -3.9 .96 -2.2 1.07 -3.9 .96 -2.2 1.07 -3.9 .96 -2.2 1.07 -3.1 .91 1.06 .95 -2.2 1.07 1.01 1.05 1.01 1.01 1.05 1.00 1.07 1.01 1.05 1.00 1.07 1.01 1.05 1.09 -4.2 .94 1.03 .21 .99 1.12 1.10 -2.0 1.09 1.01 1.07 1.01 1.01 1.01 1.07 1.00 1.07 1.01 1.01	.93	76.	66.	1.01	1.03	%.	1.02	8.	1.00	1.01	66.	.93	1.04	66.
-3.1	_	8.		*	1.11	.93	F		1.00		. 76.	_	.82	0.5
-3.1		.61	· ·	86.		%			%.		16.		6.	3.3
1.01 1.01 1.01 1.01 1.02 1.04 1.03 1.21 1.09 1.12 1.10 1.05 1.10 1.05 1.10 1.01 1.01 1.01	יי	.7	7	16.	1990	- 56.		<u>i</u>	.92		56.	,	*. 	_
1.01 .72 .43 1.01 1.05 -94 1.03 .21 .99 1.12 1.10 -4.2 .92 .92 .97 1.12 1.10 -4.2 .92 .92 .97 1.10 1.11 .41 .97 1.00 1.07 1.09 1.11 .41 .97 1.00 1.07 1.07 1.11 .41 .97 1.00 1.07 1.03 -94 .75 .71 1.03 .96 1.04 RS IN TABLE ARE PRESSURE COEFFICIENTS Co. PTPS RES IN TABLE ARE	ŧ.	99.	06.	98.	1.13	1.01	11.11	66.	76.	.58	09.	1.23	1.10	1.06
-3.1 94 -2.4 60 RAKE 941 1.13 1.2 1.10 -3.1 .94 -2.4 .96 MOUNTING 941 1.13 1.2 1.09 -3.1 .92 .70 .97 1.00 1.07 1.07 1.11 .41 .97 1.00 1.07 1.07 1.11 .41 .97 1.00 1.07 1.11 .41 .97 1.00 1.04 1.01 .77 .66 .90 .99 1.04 1.03 .96 1.03 1.94 .75 .71 1.03 .96 1.03 1.94 .75 .71 1.03 .96 1.04 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.04 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.03 1.04 .75 .71 1.03 .96 1.04 1.03 .75 .71 1.03 .96 1.04 1.03 .75 .71 1.03 .96 1.04 1.03 .75 .71 1.03 .96 1.04 1.04 .75 .71 1.03 .96 1.04 1.05 .75 .71 1.03 .96 1.04 1.05 .75 .75 .71 1.03 .96 1.04 1.05 .75 .75 .75 .75 .75 .75 .75 .75 .75 .7		1.01	.72	64.	1.01	1.05			96.	.57	.83	66.	16.	
-3.1 .94 -2.4 .60 MONTING .941 1.13 1.2 1.09 -4.2 .92 1.10 -2.0 1.09 -2.0 1.11 1.1 1.2 1.09 -2.0 1.01 1.11 1.10 1.10 1.01 1.01 1.01 1	00.	*6.	1.03	12.	66.	1.12	1.10	1.00	%.	1.00	27.	1:11	1.01	1.15
-3.1	_	16.	j	RAKE		_			1.01		RAKE	1.01	71.07	۲.
1.07 1.03 1.03	1100	.88	*	WOUNT INC	.93	1.10		100	96.		Ф	1.04	60.1	3.0 1.12
1.07 1.03	ن	J 26.	<u>.</u>	POINT	1.01	- -:-		3	.92				1.16	}
1.03	10.1	11.11	7.	.97	1.00	1.07	1.07	1.04	1.01	1.01	16.	17.	1.04	61.1
1.03			9.	06.	66.	1.04			86.	86.	65.	.80	۲۰.	
LEFT SUMEY PLANE	.95	6.	.75	и.	1.03	%.	1.03	1.00	1.00	6.	1.08	.67	09.	1.07
LEFT sumer	NUMBERS	IN TABLE A		E COEFFICIE		113		NUMBERS	IN TABLE AR	E PRESSUR	COEFFICE	ENTS C.	4	
Trans.	UPPER	LN BOXES I	NUICATE FL ISPLACEMEN DISPLACEM	IT, POSITIVE	ON IN DE	GREES. MASH FLOW FROM LE	FT SURVEY	UPPER = LOWER = 1	IN BOXES IN VERTICAL DI HORIZONTAL	SPLACEMEN'SPLACEMEN'S	T, POSITIVENT, POSIT	ON IN DEGI	REES. ISH OW FROM LE	FT SURVEY
	O KIGH	TABLE IS SEE	N FROM THE	FLOW		7475IN	PARE PARE	NOTE - TAE	BLE IS SEEN	FROM THE	102		M 67 9 7	AND THE PARTY OF

1	RUN 34 POINT V=60 KNOTS	19 ALPHAE q = 11.4 PSF	O DEG	DEG PSI= 8.0 DEG	9		RUN 35 V= 100	S POINT S	= 30.7 PSF.		DEG PSI=0 DEG	
	1.01	1.00	96.	1.10	26.	8.	1.00	86.	56.	8.	8.	8.
	66.	6.	1.02	71.12			\$.	96.	•	8.	٩:١-	_
96.	1.00	96.	. 92	1.07	.97	\$.	*	e .	76.	1.00	1.05	•
66.	1.00	.95	1.00	1.08			\$.	6.	.97	<u>. </u>	3.17	
.98	.97	1.01	.97	1.09	86.	8.	1.00	6.	•	ş.	1.04	66.
66.	1.01	1.00	66.	1.02			\$	%	.95	76.	1.02	
1.00	.97	1.03	1.38	96.	66.	1.00	8.	.91	.83	š.	1.01	£.
66.	•. -[:	.97	1.08	151	;	L	8	%· -√	\$.	\$. [, , ,	-
.98	1.00	96.	.63	8.	1.05	\$	•	.2.2	۲.	11.11	1.00	\$.
6		16.	· ·	`*:				٠ <u>٠</u> ٠٠	.02	•••		<u>;</u> }
.95	*·	.93	1.06	94.	1.10	8.	1.00	•	1.01	1.06	8.	\$.
96.	%.	.63	1.00	.88			Ė	11.1	ŗ.	۶.	1.09	
1.04	96.	**.	16.	09.	1.10	į	į	.6.	11.	.67	ě.	1.01
1.00	11.17	RAKE	.54	1.03			1.02	-{ 3.	RAKE	.52	1.01	-
.95	1.6.		1.03 -1.6	1.10	1.12	1.00	8.	-2.2 -8u	T OF CALL		\$.	1.03
66.	1.01		1.06	1.08		<u>.</u>	71.05					<u>:</u> }-
.97	.97	.92	1.0	.85	1.06	1.03	*	1.05	.51	\$.	1.03	1.03
1.01	96.	.18	.33	16.			*	1.05	3.	\$	1.03	
96	? .	.65	.39	. 80	1.01	\$.	<u></u>	1.01	:	•	1.03	1.02
W	NU-BERS IN TABLE ARE PRESSURE COEF	RE COEFFICE	FICIENTS G. D	1		MUNERS	IN TABLE	ARE PRESSURE COEFFICIENTS	E COEFFICE	11. 6 STM	닭	
vr (9	NUMBERS IN BOXES INDICATE FLOW DIRE UPPER = VERTICAL DISPLACEMENT, POSI LOWER = MORIZONTAL DISPLACEMENT, PO TO RIGHT LOOKING AFT.	LOW DIRECT! NT, POSITIV MENT, POSIT	ECTION IN DEGREES. ITIVE FOR UPWASH SSITIVE FOR FLOW FROM		LEFT SURVEY	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IN BOXES 1	IN BOXES INDICATE FLOW DIRECTION IN DEGREE WENTICAL DISPLACEMENT, POSITIVE FOR UPWASH CONTINUE FOR FLOW	DW DIRECTION T. POSITIVE !	N. S. S.		LEFT same
U	NOIE- TABLE IS SEEN FROM THE		,		No. of London		15 E	The problem THE PLANT		4	-	1

	RUN 35 V= 100. K	POINT	6 ALPHA=-6.0	CONFIGURATION	RATION F	DE 6		RUN 35 V= 100.	POINT	7 ALPHAE-4	ALPHA=-4.0 DEG PSI=0 30.7 PSF. CONFIGURATION	SI=0 DEG JRATION F	9
16.	16.	5.	76.	96.	8.	56.	76.	8.	66.	76.	8.	1.01	*.
	76.	16.	*		*.			96.	6.	96.	·e.	٠. آ•	
96.	.97	96.	%	•		16.	86.	16.	6.	6.		66.	.97
	8.	46.	66.	6.	6.			86.	1.00	66.	26.	8 .	
.97	%.	.6	96.		.92	%.	86.	1.00		65.	8.	76.	96.
	%.	.9e	6.	%.	16.			86.	36.	1.00	1.00	26.	
.96	86.	.6.	%	.97	.92	96.	86.	76.	.9 8	1.00	1.01	8.	1.01
-	%	6.	86.	۴.	.93			. 8		1.01	1.00	*	- 5.4
.96	*	£.	ŧ.	.6.	6.	96.	8.	1.01	6.	35.		36.	°.
	76.	٠. د.	95.	.93]_	J —	*		* .	\$. 	\$. -	}
96.	96.	*6*	10.1	16.	96.	* .	* .	8.	.78	1 .	76.	6.	1.00
	96.	%	.72	89.	96.			.95		58.	٠,	%.	
96.	86.	1.14	10.	ô.	66.	6.	.97	1.08	.51	*.	19.	1.01	96.
	%	ة ا	RAKE	8	%		Ľ	%	*. -[;	RAKE	%	*. 	-[0
1.00	1.03	.5 .56	MOCENTING HOUSE	. 4.	.91	-8.1	1.02	1.07	1.01		.	1.03	86.
-1.7	1.04	89.	POINT	.65	· ·	- -}			·•.		.82	3.17	7
1.00	1.01	é.	71.	.92	.91	.92	1.00	1.01	٠,	64.	.93	.97	96.
	6.	.7.	*.	8.	.92			86.	•	95.	.79	26.	
86.	%.	9.	.17	80.	*	.99	86.	8.	6 .	.51	.87	* .	.93
BERS 1	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS Cp . P. PS	ENTS G. P.	4		NUMBERS	IN TABLE A	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	COEFFICIE		2,0	
BERS : VER : 1	ERTICAL DI	DICATE FI SPLACEME! DISPLACE!	HUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = WERTICAL DISPLACEMENT, POSITIVE FUR UPWASH TO BITALL LOWING AFT	E FUR UPAAS	SH FROM L	LEFT SUMEY	NUMBERS UPPER = LOWER = TO RIGHT		IS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW HIT LOOKING AFT.	DW DIRECTIC F. POSITIVE ENT. POSITI	ON IN DEGREE	NO 2	LEFT SURVEY
F- TA	NOTE TABLE 15 SFFU	CROM THE FLOW	-			PANE	NOTE- TABLE	TABLE IS SEEN	'N FROM THE FLOW	FLOW	-		PAKE

15%	RUN 35 POINT V= 100 KNOTS	• "	ALPHA= 4.0		DEG PSI=0 D	DEG F		RUN 35 V= 100	POINT	9 ALPHA= 8.0	S.0 DEG	DEG PSI=0 C	DEG
.9	1.01		66.	16.	1,02	8.	96.	š.	1.01	66.	8.	8.	86.
	. w.		86.	8.	1.02			8.	86.	\$6.	1.01	1.00	
.9.	1.00		96.	۶.	1.03	8.	8.	1.00	8.	69.	10.1	1.03	.97
\$.92	.	3.7			•	%	.97	.9.	20.1	
		-	1.05	.97	1.01	86.	96.	1.00		64.	1.06	1.00	.98
8	٠٠.		.83	8.	1.01			*	.81		į	1.01	
		_	.63	%.	*.	86.	1.01	.92	.95	67.	ŧ.	3.	
.92	٦		.82	1.05	1.03	_ _[:		1.00	10.1	98.	1.0	1.00	-[
			90.	ŝ.	1,01	1.00	1.01	8.	9.	.30	1.01	.92	1.02
5	11.11		16.	1.04	8 .	<u> </u>		1.08	*	1.27	_	.92	•.}
1.01	.82		1.04	.79	8.	1.02	.97		9.	1.07	%.	1.03	1.06
.99	.35		£0.	6.	1.05			1.01	٤.	.52	00.	%.	
1.14	, 34°		97.	1.03	1.02	1.04	.95	6.	**	54.	1,17	1.04	1.04
.98	٦		AAKE	79.	1.02	[L	86.	· •	RAKE	99.	1.03	-[
10.1				16.	1.05	1.02	1.02	1.01	10.0	ST THE	.63	9.8	7.9
.95				66.	11.00	:]-		*: •:	٠ <u>٠</u>		.86	20.1	<u>[;</u>
.98			58.	18,	1.02	1.02	1.01	1.02	1,05	.37	1.08	6.	1.02
1.00	.9.		.33	1,19	1.01			66.	6.	*	76.	6.	
6.	.7.		64.	1.00	66.	1.01	96.	1.00	.8.	18:	6.	%.	76.
1	NUMBERS IN TABLE ARE PRES	E PRESSURE COEFFICIENTS C Pr.Ps	FFICIE	ITS Co.	4,		NUMBERS	IN TABLE	IRE PRESSUR	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP. PPS	NTS CP :	Pr-Ps	-
MAZZ	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FOW FLOW F ALL LOOKING AFT.	DICATE FLOW DIRECTION IN DEGREES SPLACEMENT, POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR FLOW T.	SITIVE POSITIVE	FUR UPW	DICATE FLOW DIRECTION IN DESRES. SPLACEMENT, POSITIVE FOR PLOW FROW LEFT SUMEY DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SUMEY T.	EFT SURVEY	UPPER =	IN BOXES I VERTICAL (HORIZONTAL	INDICATE FL DISPLACEMEN DISPLACEM IFT.	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOMING AFT.	E FOR UP		LEFT SURVEY
	NOTE - TABLE 15 SPEN EROM	מסיים בחבים				RAKE	NOTE TA	TABLE 15 SEE	IS SFEN CROM THE ELON	10.6			RAKE

	RUN 35 V= 100	POINT 1	ALPHA= = 30.7 P	_	DE6 PSI=4.0 DEG	9		RUN 35	5 POINT 11	1 ALPHA=-4.0 = 30.7 PSF.		DEG PSI=+4.0 DEG	
96.	8.	6.	.97	8.	1.00	1.00	96.	1.00	96.	96.		\$.	66.
	.97	6.	3.	% .	10.1			86.	.6.	66.	16.	٠ <u>.</u>	
.97	.93	.97		1.02	1.04	3.00	8.	8.	.97	.97	86.	36.	96.
	đ.	8.	\$6.	86.	1.03			.97	.97	66.	86.		
96.	1.03	.97	?	* .	1.04	.97	1.00	•	3.	6.	86.	*.	6.
	.00	1.00	\$6.	6.	1.06			\$6.	.97	76.	86.	\$6.	
8.	3	6.	66.	.93	66.	1.00	8.	8.		96.	95	76.	56.
− [:	\$. [4	* _['	09.	1,05	13:7 			.97	·;	66.		66.	
8		6.	1.13	1,05	1.00	1.00	\$	38.	-7.5	95.	· .	76.	36.
; }	٠ د د	-3.0 -3.0	•3:	1.06		-2.3		-3.8	-2.0	10.1	ī	- 9:1 5:1	7
96.	. 92	.84	.55	<i>.</i>	1.05	1.03		8.	.7.	\$6.	6.	\$6.	.92
	\$	ē.	1.04	1.06	6.			.70	19.	.53	. 93	96.	
1.00	\$	36.	•	2	1.01	1.01	96.	3	19.	63.	9.	26.	.93
	\$. [ĕ ;	RAKE	1.12				5	٠. د.	RAKE	16.	16.	
.05	8.		₹ •	1.03	1.07	1.07	9.1	.97	.5.	MOURITING	96.	.95	.5.0
-	sr.	ۇ. -		1.02	1.08	0.		-1 05.	· • · · · ·	POĮNĮ	9		<u>-</u>
1.03	.03	ŝ.	8.	1.00	1.05	1.04	1.02	1.02	**	•5•	6 .	56.	;
	\$.,	.53	1.01	1.06			.96	.7.	. 70	8,	66.	
1.01	.76	.63	.76	1.02	1.04	1.04	1.00	96.	.61	.93	8.	66.	96.
NUMBERS II	IN TABLE	ARE PRESSURE COEFF		ICIENTS CP .	20		NUMBERS	NUMBERS IN TABLE A	RE PRESSUR	ARE PRESSURE COEFFICIENTS CP		1	
NUMBERS IN BOXES IND LOPPER = VERTICAL DIS- LOWER = HORIZONTAL D TO RIGHT LOOKING AFT	ERTICAL ORIZONT	4S IN BOXES INDICATE FLOW DIRE = VERTICAL DISPLACEMENT, POSI = MORIZONTAL DISPLACEMENT, PO BMT LOOKING AFT,	ON DIRECTION IT. POSITIVENT. POSIT	CTION IN DEGREES. TIVE FOR UPWASH SITIVE FOR FLOW FROM	10 N	LEFT SUMEY	NUMBERS UPPER II		INDICATE FL SISPLACEMEN OISPLACEM	IN BOXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FUR UPWASH HORIOMAL DISPLACEMENT, POSITIVE FOR FLOW FROM FLOOKING AFT.	ON IN DEG	REES. ASH LOW FROM LE	LEFT SURVEY PLANE
NOTE- TABLE	LE 15 SI	IS SEEN FROM THE FLOW	20	:		PAKE MOUNTING	NOTE- T	TABLE 15 SEEN	IN FROM THE FLOW	10.0	,		PAN E

s.	RUN 35 V=100.	POINT 12 KNOTS 9	= 30.7 PSF.	CONFI	DEG PSI= 4.0 DEG	9		RUN 35 V= 100.	POINT 13	ALPHA: 4.0 = 30.7 PSF.	O DEG	DEG PSI= 4.0 Di) 9 <u>3</u> 0	
	.9.	16.	.97	8.	\$.	96.	6.	%.	66.	76.	8.	1.03		8.
	8.	66.	16.	*.	20.1			8.	.97	6.	٤.	٠٠٠١ ارْ		
8.	\$	•	\$.	? ? .	1.02	.97	8.	8.	96.	76.	16.	10.1		.9
			66.	*.	•••••			•	86.	%	6.	96.		
	96.	.97	66.	\$.	1.02		\$.	8.	86.	•	•	1.01		6
	8.	96.	76.		1.01			86.	1.03	.92	62.	•		
66.	1.00	96.	76.	%.	6.	8.	.97	16.	6.	.89	19.	8.		66.
-[.00		76.	8 .	6.	_[:		*	*.	.52	8.	%.	-[
96.	\$		*	٤.	%	16.	1.00		3.3	.87	.93	6.		1.03
2.6	8.	<i>*</i> .	1.02	, %.	*. •.	; ;	.4	2.7	3.6	.83	*	* ·	*:	
66.	8.	1.07	*	.67	.72	1.00	•	.97	.57	.82	1.04	*.	_	1.05
	*	86.	06.	98.	.67			1.01	2.	*8.	1.01	1.00		
.96	%	6.	£0.	.87	6.	1.03	8.	1.01	6.	.53	2.	1.05	-	1.02
-[6.		RAKE	1.	8.			*·	-{ -i-	RAKE	1.01	6.	-[
1.03	6.			15.	1.00	1.03	1.02	3.2	1.9	HOUNTING	.92	67.		1.00
:}	8.	1.0	Z C	1.02	50.1	•;}		1.2	5.8	POINT	5.	69.	3.2	
1.01			.38	٠.	1.02	1.02	1.01	\$	6.	.39	.53	1.00		6.
	8.	66.	.57	5.	1.06			\$.	•	*	\$	85.		
8.	8.	6.	.85	69.	1.00	10.1	.6.	6.	1.0.1	76.	*	ŗ.		.97
NUMBERS IN TABLE AR	TABLE AR	-	PRESSURE COEFFICIENTS	ENTS Co - T-PB	1.19		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS C. PP.	COEFFICIE	NTS	- 5		
NUMBERS IN BOXES 1140 UPPER = VERTICAL DIS LOWER = HORIZONTAL I TO RIGHT LOOKING AF	BOXES IN TICAL DI IZONTAL OKING AF	DICATE FLC	DICATE FLOW DIRECTION IN DEGREES. SPLACEMENT, POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR	ON IN DEGI	9	LEFT SUNEY	NUMBERS UPPER = LOWER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI	IS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. = WERTICAL DISPLACEMENT, POSITIVE FOR UPWASH = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FOOM ** LOGGE AND ACT TO STATE AND	POSITIVE	FOR UP	9	LEFT SUREY	ž ž
NOTE- TABLE IS SEEN	IS SEEN	FROM THE FLOW	FLOW			ROLL	NOTE- TA	IBLE IS SEI	TABLE IS SEEN FROM THE FLOW	104			35	POLINTING

	RUN 35	S POINT 15 O. KNOTS 9 =	= 30.7 PSF.	O DEG PS	DEG PSI=-4.0 DEG			RUN 35 V= 100.	S POINT 14	ALPHA=	1	DEG PSI=-4.0 DEG	ی
86.	6.	å.	85.	%.	86.	1.00	76.	76.	.6.	8.	96.	66.	1.01
	96.	.97	96.	%.	s			86.	.97	76.		66.	
1.01	86.	6.	56.	66.	 56.	96.	76.	86.	46.	96.	1.01	1.03	96.
	66.	é.	**	1.00	. s.			86.	1.00	96.	. 76.		
1.00	96.	%	16.	\$6.	76.	96.	66.	96.	ē.	66.	96.	1.02	.97
	.93	6.	74.	96 •	66.			96.	86.	70.	86.	1.02	
1.00	.85	٠,	86.	95	86.	96.	96.	66.	.97	66.	1.00	1.00	66.
	99.	·.	70.	26.	00.1		Ľ	.95	٠٠. ارْ	66.	1.00	86.	_[?-
.99	.87	4. C!	1.00	56.	86.	**.	. 49.	1.01		1.01		.97	66.
2.4.	.75	-3.5 .5.	50.	36.] 76.	2]-	<u> </u>	1.10	16.	78.	1.02	96.	7
1.01		.7°	.76	96.	1.00	56.	1.00	18.	٠٦.	86.	1.04	96.	1.01
	57.	6.	.73	26.	86.			.45	. 68	11.	1.03	66.	
1.02	69.	1.0.	.72	66.	*6.	96.	1.02	66.	.60	800.	66.	86.	1.02
	**	.8.	RAKE	1.05	96.		L	*6.	76.	RAKE	1.06	1.00	_[=
1.04	*6.		MOU!,TING	1.01		1.3	1.04	1.100	1.00	o de la constantia de		1.05	-5.7
	16.	16.		86.	96.			1.04	78.		86.	7 7.1	1
1.02	*6	.5.	1.08	76.	.97	76.	1.01	.85	.72	1.02	96.	1.03	1.03
	.80	.93	68.	16.	1.03			9.	.08	7.	1,02	1,03	
1.01	69.	٠,	\$6.	* .	1.02	1.00	6.	.93	8e	1.07	%.	1.03	1.04
MBERS I	NUMBERS IN TABLE ARE		E COEFFICI	PRESSURE COEFFICIENTS Cp : PI-PS	S-1		NUMBERS	NUMBERS IN TABLE	ARE PRESSURE COEFFICIENTS CP :	E COEFFICI		Pr.Ps	
MBERS I	NUMBERS IN BOXES INCOMPER = VERTICAL DISCOMER = HORIZONTAL FOR IGHT LOOKING AF	HUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOMER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	OW DIRECTION TO POSITIVE OF POSITIVE	ON IN DEGR E FOR UPWA IVE FOR FL	EES. SH OW FROM LEF	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGH	NUMBERS IN BOXES IND UPPER = VENTICAL DISI LOWER = HORIZONAL D TO RIGHT LOOKING AFT	NUMBERS IN BOXES INDICATE FLOW DIPECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPMASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	OW DIPECTION TO POSITION	ON IN DEG	REES. ASH LOW FROM LE	LEFT SURVEY
NOTE- TABLE IS SEEN	LE 15 SE	EN FROM THE FLOW	FLOW			RAKE	NOTE- T	ABLE IS SEI	TABLE IS SEEN FROM THE FLOW	FLOW			PAKE

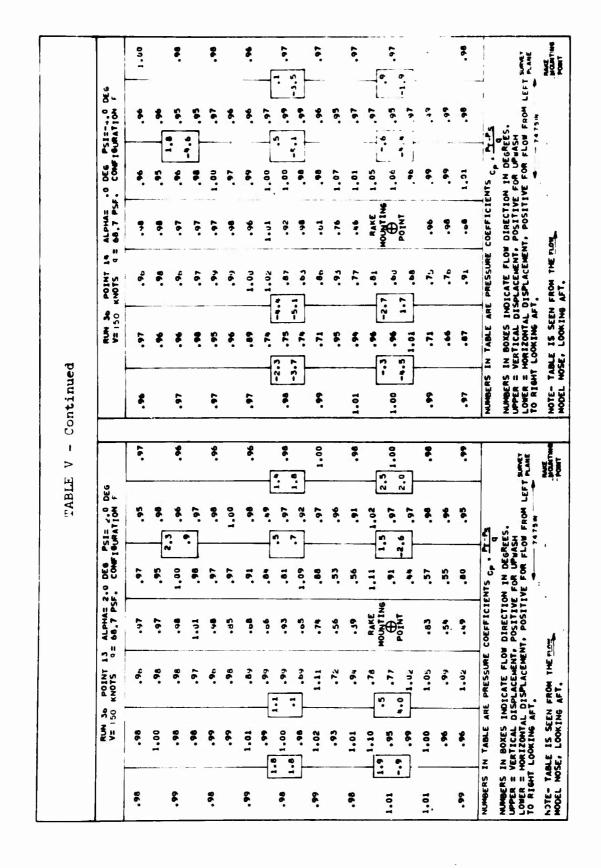
SH FROM LE	IVE FOR UP	W DIRECTION POSITIVE NT. POSITIVE	NDICATE FLO ISPLACEMENT DISPLACEMENT	IN BOXES IN VERTICAL DI HORIZONTAL	NUMBERS UPPER = LOWER = TO RIGHT	PLANE	0 ×	N IN DEGR	W DIRECTION POSITIVE	OICATE FLO ISPLACEMENT DISPLACEMENT	IN BOXES IN VERTICAL DI HORIZONTAL I LOOKING AF	NUMBERS UPPER = LOWER = TO RIGHT
S P	ENTS Cp	COEFFICIE	RE PRESSURE	IN TABLE A	NUMBERS		4]_	MTS Cp . IT	COEFF ICIE	RE PRESSURE	IN TABLE AF	NUMBERS
64.	.37	-82	96.	ę.	1.00	96.	.92	ž.	64.	10.1	1.00	1.00
1.06	6 .	16.	.93	76.			89.	.32	54.	1.03	1.00	
17.	٠,	10.	.99	8.	1.03	56.	1.04	5.	1.01	10.1	6.	1.01
1.05	1.06	NIOA	.6.	.99		2]	*•	1.03	ž		1.00	
20.1	٠. ي.	MOUNTING	٠. و. و.	6. 8.	1.05	8.	26. 6.		MOUNT ING		1.00	1.05
1.06	.65	.70	6.	1.01	8.	\$6.	\$6.	.50	.89	1.12	10.1	1.00
. 8	.26	1.01	96.	%.			.82	.8 5	64.	.9e	8.	
1.09	19.	16.	6.	8.	66.	\$6.	1.01	• 65	66.	1.08	8.	.96
.93	.92	. v.	5.2 .9.	1.01	*.	د. و	8. e	17. 8.	96.	٠. ١	8 8	8.
.59	\$. [96.	*. 	* 	_	F	1.03	£.	\$6.	٠٠. آ:	6.	Ľ
66.	6.	96.	96.	1.01	96.	%.	*6.	98.	96.	1.00	1.02	96.
1.01	1,00	16.	96.	1.01			\$6.	1.02	86.	86.	8.	
1.02	1,01	96.	*6.	16.	8.	96.	\$6.	66.	1.00	1.01	1.01	86.
17.17	1.02	16.	.98	96.			\$.		16.	96.	8.	
76.	1.00	96.	86.	.9	6.	66.	ş6.	6.	1.00	6.	96.	96.
*. _[•	.	1.00	.97	6.			. F.		96.	96.	1.00	
%.	8.	*	%	8.	.97	1.01	5 .	6.	1.00	66.	1.00	8.
	CONF		KNOTS 9	NUN N			SI= 4.0 DEG	O DEG P	5 ALPHA=	FOINT KNOTS	20 = 20 = 20 = 20 = 20 = 20 = 20 = 20 =	
	1.00 F F F F F F F F F F F F F F F F F F	CONF. PSI = 0,0 DE 96 95 96	ALPHAE . 0 DEG PSIE 9.0 DEG PSIE 9.0 DE 1.0 DE 1.0 DEG PSIE 9.0 DEG PS	S POINT 17 APPHS 0 DEG PSTE U.0 DEG PKNOTS 9 = 30.7 PSF. CONFIGURATION F 96 .96 .96 .96 .96 .96 .96 .96 .96 .96	*** **********************************	RUN 35 POINT 17 ALPHAE 0 DEG PSIE U.0 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0		1.00 DEG 1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.0	1.00 PEG 1.0	190 DEG 11.01 1.01 1.01 1.01 1.01 1.01 1.01 1.	99 99 99 99 99 99 99 99 99 99 99 99 99	RUN 35 POINT 16 ALPHAS . 0 DEG PSIS 4,0 DEG 1.00 .99 1.00 .99 3.2 .99 1.00 .99 1.00 .99 3.2 .95 1.01 1.01 1.01 .99 .95 .95 1.02 1.00 .96 .97 -0 .96 .99 1.02 1.00 .96 .97 -0 .99 1.03 1.04 .99 .95 .73 -0.9 1.04 1.05 .99 .95 .73 -0.9 1.06 .99 .90 .95 .95 1.01 1.12 .99 .95 .71 -0.9 1.01 1.12 .89 .85 .85 1.01 1.12 .89 .85 .95 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.12 .89 .90 1.01 1.01 .91 .91 1.04 .95 1.00 1.01 1.01 .91 .91 1.04 .95 1.00 1.01 .90 .95 .74 .96 1.00 1.01 .90 .95 .74 .96 1.00 1.01 .90 .95 .74 .96 1.00 1.01 .90 .95 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.01 .90 .90 1.00 1.00 .90 1.00 .90 1.00

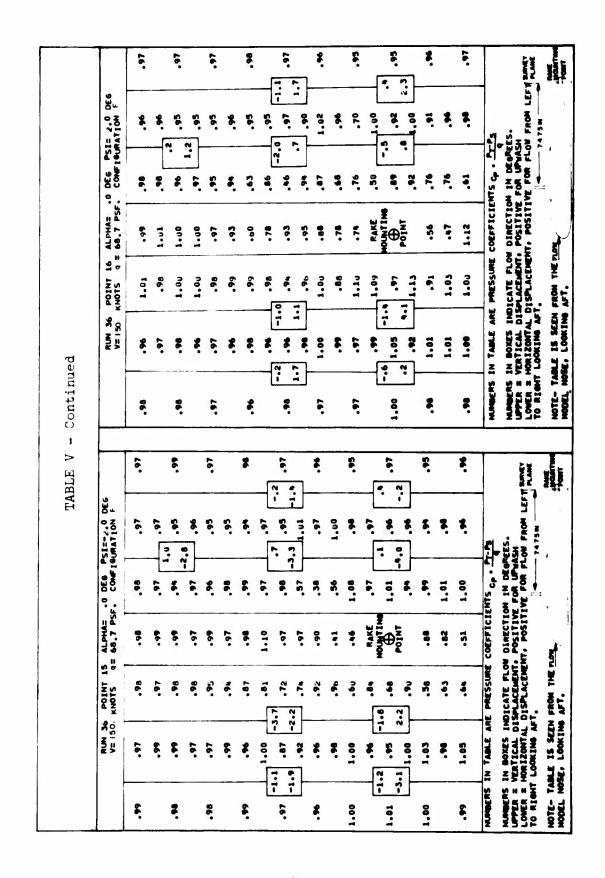
	į	FROM THE.	LOOKING AFT	TO RIGHT	PLANE	74.75 IN				TO KIGHT LOCKING AFT
FUR UPWASH	W DIRECTION POSITIVE	JICATE FLO SPLACENENT JISPLACEME	N BOXES INC ERTICAL DIS IORIZONTAL C	CPPER = V CPPER = V LOWER = H	T SURVEY PLANE	ES. SH FROM LEF	ON IN DESREE FOR PLA	W DIPECTION FOSTIVE	DICATE FLOSPLACE: ENT	BCYES INC TICAL DIS TZCNTAL CONTAL
NTS Co. Pr	CUEFFICIE	PRESSURE	N TABLE ARE	NUMBERS I		4.	ENTS CP . D	COEFFICIE	E PPESSURE	NUNBERS IN TABLE AME
76.	1,	28.	86*	66.	1.00	1.03	1.01	. 95.	6.6.	76.
	. 68	36.	1.01			1.00	66.	10.	.93	60.
6.	.32	78.	66•	1.00	1.00	1.01	1.00	77.	16.	56.
5 .		۶. ج	1.04	<u>:</u>]	-	76.	1.02	12104	:- ::::	1.01
.82	Φ.	6.	66.	1.01	76.	1.00	65.	Por TIVE	٠. نو	-2-
.63	RAKE	٠ -۲۰	66.	_[:		69.	16.	RAKE	1:1	6
,34·	.73		66.	36.	96.	*6 *	1.17	.56	46.	.93
и.	64.	• bt	1.00			1,01	.57	oa.	9	96.
16.	٤٠٠	• 8th	76.	1.00	66.	96.	1.09	٠7.	1.07	10.1
::	70.	,5°	J.0.1	: <u>}</u>	-1	1.05		26.	 1	<u>;</u>
36.	3,	96.	. 76.	96.	16.	10.1	%.	.78	.4.	6.
	. 36.	۴. ا	76.	1		96.	*·	06.	é.	
. 46.	76.	16.	76.	86.	86.	1.01	86.	98.	10.	76.
.60	72.	•	1.00			66.	96.	54.	.96.	óh•
. 44	76.	36.	16.	66.	66.	86.	86.	3.	1.90	76.
 	76.	₫6.	76.			, %	<u>ا</u> :	95.	46.	1.00
1.00	16.	.97	66.	96.	66.	86.	1.03	74.	26.	66.
.97	87.	16.	96.			8. F	· .	74.	16.	76.
. 47	16.	۰9،	86.	66.	66.	96*	bo.	gh.	7°.	.64
CONFISUPA		- 1	RUF 36 V= 150			1=0 DEG	2	ALFHA=	P01147 5	RUL. 36 V= 150
017 019 0.	0.0 DEG PSIE		97. 16 ALCHAE-4.0 DEG PSIE 97. 97. 98. 97. 97. 97. 97. 97. 97. 97. 97. 97. 97	80	### 36 POLIST & ALPHA=4.0 DE6 PSIE **98		99 . 99 . 99 . 99 . 99 . 99 . 99 . 99	99 . 99 . 99 . 99 . 99 . 99 . 99 . 99	99 . 99 . 99 . 99 . 99 . 99 . 99 . 99	1.30 .97 .97 .97 .97 .97 .97 .98 .99 .99

2.1. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9	96. 66.	8.	KNOTS 9=	ALPHA= 68.7 P	_	DEG PSI=0 DEG	•
1.00	6. 6.		86.	68.	86.	1,00	1.03
. 99 . 991.1 . 99 . 98 . 99 . 99 . 99 . 99 . 99 .	6.	.97	86.	75.	66.	66.	
1.00	.6.	\$6.	86.	66.	1.03	09.1	1.00
1.00	.99	66.	10.1	\$6.	1.02	6 .	
1,00		.97	.6	.95	1.00	1.02	6.
1,00		%	₹8.	99.	1.01	1.00.	
-2.6	96.	%.	.92	67.	ě.	1.04	66.
-2.5 99 -3.0 .90 .75 .93 -2.4 .96 -2.5 .99 .90 .90 .90 .90 .90 .90 .90 .90 .90	_[86.	1.00	.93	1.01		- [:
0 .926 .856 1.13 -1.1 .96 .1.00 1.02 1.08 .0.5 1.02 1.00 1.00 .99 .97 .58 .86 1.02 1.02 -2.5 1.00 -2.8 RAKE .38 -3.1 .02 -1.5 -1.7 .97 .50 .92 MOUNTING 1.07 -1.5 .99 1	_	6.		99.	.75	1.03	
1.02 1.08 1.01 1.01 1.00 1.00 1.02 1.08 1.02 1.04 1.00 1.00 99 .97 .56 .86 1.02 1.00 1.00 -2.5 99 7.8 1.02 1.00 1.07 -1.5 .99 1.00 1.07 -1.7 .96 1.00	<u>:</u>	. 26.	.9,	67.	. 36.	20.1	=]-
1.02 1.085 1.02 1.04 1.00 -2.5 .97 3.1 .92 RAKE .36 -3.1 .96 1.07 -1.5 .99 1.00	.97	86.	99	.78	۲.	1.02	1.01
1.00 -2.5 1.00 1.02 1.02 1.00 1.02 1.00		86.	.95	\$6.	.42	66.	
-2.5 1.00 -2.8 HOWNTING 1.07 -1.5 .99 -1.7 .97 3.1 .64		.9.	.2º	9.	6.	%.	1.01
-2.5 97 -2.6 HOUNTING 1.07 -3.1 .96 -1.5 .99	_	86.	30.1	RAKE	1.18	% .	—[:
10.1 89 40 79.	1.01	.98	÷	S OF S	ē.	2.8 1.02	1.0
		1.03			% .	٠ ١٠	}
1.01 99. 99. 1.03 1.03 99. 1.01	1.01	1.00	٠٢.	.55	1.02	66.	1.0
.96 1.01 .41 .97 1.01		1.01	••	.36	8.	1.01	
96. 86. 52. 48. 86. 86.	8.		86.	.82	1.06	1.02	1.03
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP - PT-PS	NUMBERS IN TABLE		PRESSURE	ARE PRESSURE COEFFICIENTS CP . PI-PS	MTS Cp .	4	
DICATE FLOW DIRECTION IN DEGRES. SPLACEMENT, POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SAMMY	UPPER E VI	JUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. JOPER & VERTICAL DISPLACEMENT, POSITIVE FOR LUMASH COBER = HORIZONNAL DISPLACEMENT, POSITIVE FOR FLOW FROM TOR PRAFT LOCKING ACT.	CATE FLO	W DIRECTION POSITIVE	N IN DEG	FROM	LEFT SURVEY
	NOTE- TABLE	E IS SEEN FROM THE FLOW	ROM THE	101			THOUSE THE

	RUN 36 V= 150.	POINT	9 ALPHA= 4.0		DEG PSI=0 DEG	DEG F		RUN 36 V= 150	POINT	ALPHA=		DEG PSI=-2.0 DEG	9
96.	8.	6.	98.	8.	.91	1.00	86.	6.	%.	*:	٠.	%.	86.
	.97	.98	%.		*·			8.	÷.	16.	8.	٠. آ-	
66.	\$.	۴.	16.	.97	9.	6.	8.	\$.	.9,	\$6.	6.	76.	96.
	*	.93	1.00	.,	•			*.	.93	57.	1.81	*	
%	*.	٠.	*.	8.	1.00	% .	1.01	16.	<i>*</i> .	76.	76.	6.	.97
	8.	.57	٤.	56.	1.00			٤.	٠٢.	8.	1.00	96.	
96.	8.	٠.	19.	99.	66.		6.	1.06	۲.	99.	96.	86.	% .
Ľ	*. 	%	3.	*.	76. 2.9	<u>-[;</u>		1.00		18.	_	3.8	4.2
8.		1.03	1.02	<u> </u>			10.1	96.		1.09		* .	.1.4
_	.97	7	06.	1.03	*.	}		8 :		6 '] R. 8		}
.97	\$.	8 •	98.	26.	\$. 	5. -	1.01	.	·••	c,	£ :	Ŗ. '	:
	Se.	?	61.	٠,	.52			ŧ.	.72	02.	79.	.97	
.99	% .	.57	. 42	1.04	26.	6.	1.01	1.01	1.00	16.	96.	66.	66.
Ľ	86.	٠ ٠	PAKE		%. - -	-		9.1	-i.°	RAKE	1.00	1.02	_[ª
1.00	*	.87	2 ⊕	8.	1.02	-	10.1	1.00	\$4.	Φ.	8.	66.	1.00
2	96.	.5.	2	.92	20.1	•]-		8i	*. :}-		96.	10.1	: :}
66.	1.02	.80	.37	8.	66.	1.00	1.01	8.	٠٠.	.62	76.	1.01	1.01
	8.	.6.	• 50	8.	1.00			6 .	٠.	90.	66.	6.	
.97	%.	.97	65.	٤.	1.00	1.00	6 .	ŧ.	٥٠.	7.	%.	66.	1.01
BERS	NUMBERS IN TABLE ARE		PRESGURE COEFFICIENTS Cp . PT-PS	ENTS CP .	8		NUMBERS	NUMBERS IN TABLE A	ARE PRESSURE COEFFICIENTS CP :	E COEFFICIE	INTS CP :	8	
BERS ER = ER = RIGHT	VERTICAL DI HORIZONTAL LOOKING AF	ISPLACEME DISPLACE T	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWISH TO REAT LONGING AFT. TO RIGHT LONGING AFT.	ON IN DEG E FOR UPW IVE FOR F	ASH LOW FROM	LEFT SURVEY	UPPER = LOWER = TO RIGH	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWISH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	NDICATE FLO	DW DIRECTIC F. POSITIVE FNT. POSITI	ON IN DEGI	REES. ASH LOW FROM LE	LEFT SURVEY
NOTE- TABLE IS SEEN	NOTE- TABLE IS SEEN	FROM TH	THE FLOW			MOUNTING	NOTE - T	NOTE - TABLE IS SEEN FROM THE FLOW	N FROM THE	FLOW			PAKE

	NUN 3	RUN 36 POINT 11	11 ALPHA= 2.0 DEG PSI=-2.0 q= 68.7 PSF. CONFIGURATION	2.0 DE6	PSI=-2.0 DEG GURATION F	9		RUN 36	RUN 36 POINT 12 V= 150. KNOTS q1	ALPHA=-2 = 68.7 PSF	2.0 DEG P	12 ALPHA=-2.0 DEG PSI=-2.0 DEG q= 68.7 PSF. CONFIGURATION F	
6.	16.	96.	\$6.	\$.	16.	96.	.6.	16.	96.	66.	16.	8.	
	8.	%	76.	š.	*.			*	8.	8.	6.	. 6.	
.9.	8.	%	84.	* .	76.	16.	8.			•	76.	96.	
	8.	.93	76.	. 8.	*6. G. 3-			\$.	%.	•	*.	6 . □	
.9	.97	6.	96.	56.	8.	.97	8.	8.	.97	.6.	* .	.9	
	.80	18.	86.	* .	*.				.97	6.	%.	%.	
96.	6.	.,	• 56	56.	*.	8.	8.	1.05	16.	.93	5 .	\$.	8.
L	96.	37.	.92	? .	76.		L	*	٠.	1.00	8 .	%.	_[3
%	66.	-5.1	•8•	1.00	3.2 1.00	96.	•	1.05	. 7.	66.	<u>; </u>	* .	
	•	,5.	.03	96.	.97			.92	2.	2.	% .	.9	7-
.97	.93	80.	.92	19.	1.00	.97	ę.	•	.6.	8.	? .	6 .	66.
	1.05	.97	.37	S .	.0.			\$.	.67	1.12	.87	1.01	
.99	.97	.52	97.	9.	8.	8.	.9	1.05	.0.	.51	*.	8.	86.
_		1.00	RAKE		01.1		_ l	.9	₹.	RAKE	.5	6.	⊣ :
10.1	8.	.9	N I N	\$.	*	76.	1.01	1.05	-3.9 .0.	N I N	<i>*</i> .	8.	76.
•	-3.4	3.2	POINT	5	\$.	?}	_	.8.	2.3	POINT	<i>š</i> .	\$. 2.2.	:}
66.		.61	16.	\$.	*.	8.	1.00	•	5.	79.	\$.	16.	%.
	.91	ų.	11.	1.01	86.			1.01	ů.	1.06	8.	5 .	
.9	•	ē .	•	\$.	8.	• .	٤.	į	•	2	\$.	*.	*.
JMBERS	IN TABLE	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP . PT-PS	E COEFFICI	ENTS CP .	4		NUMBERS	NUMBERS IN TABLE A	ARE PRESSURE COEFFICIENTS CP - PI-PS	COEFFICE	ENTS CP .		
PPER =	IN BOXES I VERTICAL C HORIZONTAL	MUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. LUMPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = PORIZONA, DISPLACEMENT, POSITIVE FOR FLOW F	T. POSITIVE	E FOR UP	MUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH FOR = HORIZONYAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PARKET	EFT SURVEY	NUMBERS UPPER B	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. LOWER B VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER B HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PLANE	ISPLACEMENT DISPLACEMENT	F. POSITIVENT. POSIT	ION IN DEG	ASH LOW FROM L	EFT SURVEY
TE- T	ABLE 15 SEE	NOTE - TABLE 15 SEEN FROM THEFTON	707			SAME.	NOTE - T	NOTE - TABLE 15 SEEN FROM THE PLOT	N FROM THE	101			RAME
						-							





	RUN 30 V= 150		7 ALPHA= 1 = 68.7 PSF		SI= 4.0 DEG	
.99	.97	.98	.97	.96	.98	.96
	.97	.98	.96	.98	.98	
.99	.97	.9.,	.98	1.01	1.00	.9
	99	.98	.97	.98	1.01	
1.01	.98	.98	.97	.96	1.01	.96
	.99	.98	.97	.91	.95	
.99	.98	.9 ₀	.79	.91	.99	.97
_	98 _	.99	.98	.73	1.02	<u>L</u>
1.01	1.03	.92	.77	.83	.81	.8
Ŀ	1.00	.96	.04	.68	.5 .89	.5
.98	1.00	1.07	.96	.76	.68	.9
	.98	.70	.71	1.03	.96	
.98	.97	.89	•59	1.00	.74	.99
-	98 _	1.07	RAKE	.59	86 _	<u>L</u> ,
.99	1.00	1.01	MOUNTING	.69	.97	.0
1	.95	.97	POINT	.87	.99	3.2
1.00	1.00	1.02	.00	.61	.89	1.01
	.99	.96	.44	.56	.89	
.98	.99	.99	1.05	.56	.91	.99
NUMBERS	IN TABLE AF	RE PRESSUR	E COEFFICIE	NTS Cp . B	-Ps	
WINDERS.	IN BOXES TO	DICATE EL	OW DIRECTIO	N IN DESE	FES.	

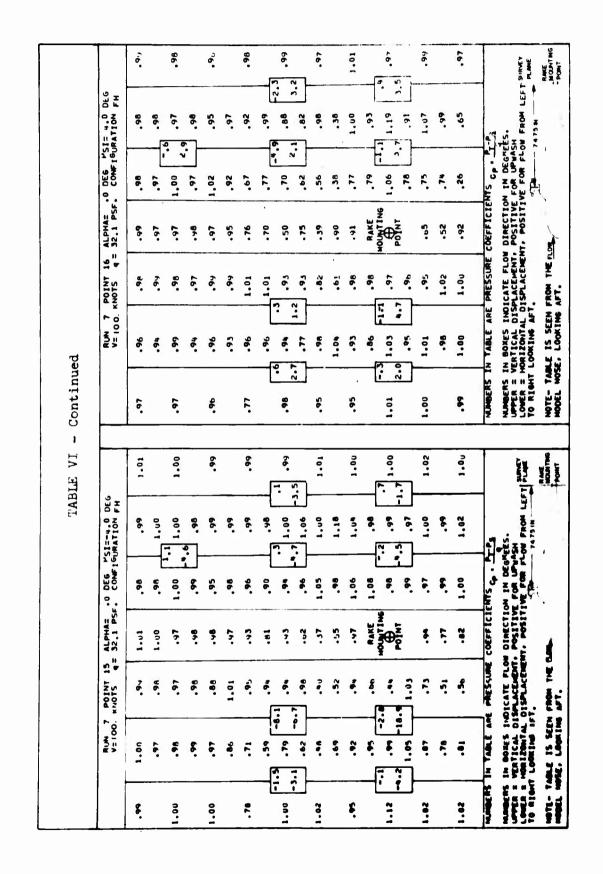
	RUN 7	POINT 5	= 32.1 PSF.	10	DEG PSI=0 DEG	وا		RUN 7	POINT 6 KNOTS 4=	= 32,1 PSF.	O DEG P	DEG PSI=U DEG	
8	1.01	1.00	65.	86.	66.	96.	6.	1.01	۶.	76.	8.	1.01	1.00
3	1.0	ć.	67.	86.				6.	.6	96.	· ·	1.00	
.69	86.	1.00	87.	86.	76.	9 6 .	8.	.98		7.	86.	66.	ş.
	.98	1.02	1.00	.98	10.1			96.	6.	96.	8.	*. :}-	
6.	.98	1.02	97.	.95	1.00	.97	86.	96.	۶.	86.	66.	1.00	86.
	.98	9	36.	%.	96.			66.	6.	76.	66.	1.00	
.78	1.02	6.	1.09	86.	86.	%.	۶.	%.	96.	76.	66.	1.00	1.00
	66.	.95	3.	9.	66.			8.	₹. —[:	ş.	1.00	%. -[*	− [;
66.	.22		78.	06.	76.	1.00	. 66.	1.02	4. 9.	95.	.e.	.97	6.
	1.00		.57	19.			<u>.</u>	; ; ;		1.03	1.05	76.	:1
86.	- %	.71	50.	1,16	.52	66.	1.02	₹.	.93	86.	.93	1.02	66.
	.89	. 34	*6.	1.03	66.			%.	11.	95.	1.17	76.	
1.00	1.00	1.01	۲۳.	54.	86.	.97	1.01	.65	. A.	36.	1,02	76.	1.00
	٠,	.52	RAKE	ř.	.95		[99.	ું. -્રે	RAKE	.52	9.	-[°
1.05	1.00	-2.8	OUNTING OUNTING	18.	*6. 3.1		1.03	96.		O O O	99.	۲.	1.00
	.6.	٠٠. وج	2101	.83	20.1		·]	.93	ş.		*9.	_ '¢. □	7
1.03	.	٠,	94.	1.02	76.	1.01	1.03	.78	• 6	٥٤.	۲.	76.	1.00
	10.1	1.00	ç	.89	* 6.			1.02	89.	10.	1.18	1.02	
1.01	1.03	16.	.38	86.	96.	96.	1.01	.97	.87	eo.	.72	1.00	.96
-4UMBE	NUMBERS IN TABLE APE		PRESSURE COEFFICIENTS Co	ENTS CP :	भू		NUMBERS	NUMBERS IN TABLE AR	ARE PRESSURE COEFFICIENTS	COEFFICE	ENTS CP :	Cp : P1-P5	
NUMBE UPPER LOVER	UDBERS IN BOXES INDICATE FLOW DIRECTION IN DESPESS. LOWER = HORIZOITAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZOITAL DISPLACEMENT, POSITIVE FOR FLOW F	TIDICATE FLOW DIRECTION IN DEGMEES, DISPLACEMENT, POSITIVE FOR UPWASH OF LOYEROM FROM THE DEGMENT, POSITIVE FOR FLOW FROM FROM FROM FROM FROM FROM FROM FROM	W DIRECTI POSITIV	ION IN DES	5	LEFT, SURVEY	NUMBERS UPPER = LOWER = TO HIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. LOWER = WERTICAL DISPLACEMENT, POSITIVE FOR UPWSH LOWER = HONGIZONIAL DISPLACEMENT, FOSITIVE FOR FLOW FROM LEFT SUMMY TO MIGHT LOOKING AFT.	NOICATE FLO ISPLACEMENT DISPLACEME	W DIRECTI POSITIVATE FOSIT	ON IN DEG	MEES. PSH LOW FROM LE	FT SUME
NOTE-	NOTE - TABLE IS SEEN	EN FROM THE FLOW	TON.	<u>.</u>		P AKE MOUNTING	NOTE - TA	NOTE - TABLE IS SEEN FROM THE BLOW	FROM THE	P. C.	(RAKE MOUNTING

	RUN 7 V= 100.	7 POINT 7	7 ALPHA=-4.0		DEG PSI=0 DEG	-		7 NON 7	POINT 8 KNOTS 4	ALPHA: 4.0 = 32.1 PSF.	CONF	DEG 'SI=0 DEG	
8.	1.01	16:	86.	8.	96.	1.01	.93	86.	1.00	87.	66.	96.	96.
	8.	6.	8.	\$.	00.1			\$6.	86.	1.00	1.01	1.00	
00.1	6.	٤.	76.	6.	_	1.00	10.1	1.02	1.00	96.	.95	96.	66.
	8.	8.	96.	*.	*. 			1.04	1.00	.83	1.02	*.	
6.	6.	6.	76.	8.	66.	8.	1.00	1.00	98.	.65	1.03	76.	96.
	1.00	1.00	76.	1.02	6.			1.03	1.06	18.	19.	66.	
11.	8.	£.	1.00	۶.	6.	1.00	87.	.89	69.	.61	06.	*6.	96.
Ü	8.	÷.	27.	10:1	8.		-	97	₃. -[. 96.	5 .	56.	⊣ :
8.	1.01	*••	96.	1.02	00.1	1.00	1.03	2.	-1.9	.89	. 16.	76.	86.
		·.		*. *.	; ; ;	?:}	•	·-) *:)	 89:	17.	%.	71.02	•}
1.00	8.	٠٠.	.,,	9.	ş	1.04	.97	1.00	10.1	64.	84.	.57	1.00
		٠,	.0	%.	.97			.93	1,25	.41	.83	1.03	
1.04	ŧ.	30.	•	\$.	.93	1.02	86.	86.	94.	.28	.63	86.	86.
	-{- 		RAKE	95.	76.			66.	٠٠.	RAKE	*·	1,01	— [•
* · ·	? ;		Part No.	ř. :	-		11.11		3.9 1.03	2002 E-02-02-03-03-03-03-03-03-03-03-03-03-03-03-03-		1.00	.9 1.00
		f f.	07.			*: }	1.02] {:	: : }	.45	88.	10.1	.97
	.97	.18	\$4.	. 47	1.07			.97	1.00	.61	96.	66.	
1.02	1.00	÷.	19.	10.1	1.03	66.	66.	66.	1.01	.33	16.	86.	••
NUMBERS	NUMBERS IN TABLE A	RE PRESSURE COEFFICIENTS	COEFFICIE	ENTS C. PP.	_ {1		NUMBERS	NUMPERS IN TABLE AR	ARE PRESSURE COEFFICIENTS	COEFFICIE	INTS C. PP.		
NUMBERS UPPER = LOWER =	NUMBERS IN BOXES INC UPPER = VERTICAL DIS LOWER = MORIZONTAL	NDICATE FLOW DIRECTION IN DEGREES. ISPLACEMENT, POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR FLOW	POSITIVE	E FOR UPLA	EES. SH FROM LEF	AJAWAS A ST	NUMBERS UPPER =	S IN BOXES INDICATE FLOW DIRECTION IN DEGMESS. = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH = INDIPATION OF PROPERTY POSITIVE FOR FLOW FROM LEFT SUMEY	DICATE FLO	POSITIVE	N IN DEGH	EES. SH FROM LF	Sale Survey
TO RIGH	LOOKING A	FT.		P.	74758.		TO RIGHT	TO RIGHT LOOKING AFT.	FROM THE			74.75 IN	1
MODEL N	MODEL NOSE, LOOKING					-	TAUEL TO	ME LUCKING		1		-	

	RUN 7 V= 100.	POINT	9 ALPHA= 8.0		DEG "SI=0 DEG			N IN IN	RUN 7 POINT 10	ALPH4=-4.0 = 32.1 PSF.	O DEG P	DEG MSI=-4.0 DEG CONFIGURATION FH	9
1.01	16.	۶6.	06.	1.05	96.	66.	1.00	96.	6.	9.	86.	96.	36.
	۴.	6.	69.	%.	1.02			96•	.97	65.	ş.	٠. ا	
1.02	1.01	1.03	-82	.92		66.	86.	96.	.	84.	8.	86.	66.
		69.	. 80	1.8	101			6.	.98	65.		°. ₽	
1.01	ě.	ąč.	.73	.30	1.25	86.	86.	.97	.97	۲۰.	8.	.97	66.
	1.06	.92	.73	.30	1.00			٤.	٠.	66.	. 16.	96.	
.78	9.	69.	.83	66.	1.08	6.	¥.	•6•	.97	1.02	96.	66.	86.
	*6.	.67	1.00	9.	.53	_	Ĺ	.6.		1.01	*.	*. -	− [°
8.	04.	1.11	5 .	.63.	1.07	4.9	1.00	.92	.93	70.	1.04	96.	.6.
	.6	-2.1	1.23	J %.	 	- ;}	<u>لن</u>	26.	\$.	1.02	.s. □	*. :-	;}
1.00	.87	5.	1.27	1.03	1.08	66.	1.01	.80	.58	.82	<i>*</i> .	96.	1.00
	.86	٠,٠	.31	1.10	28.			.36	.82	86.	SB .	\$6.	
1.01	1.03	.58	.50	.97	1.01	1.00	1.00	• 56	.7.	.72	.93	96.	1.00
	.93	٠ <u>.</u>	RAKE	1.04	1.03	_ _{		, ,	.¥. —[RAKE	8.	, ,, ,	- [:
1.02	7.8	9.1	O COLOR	20.1	2.9.76	96.	1.01	.5.8	14.	0	8.		6.
				99.	1.04	 		- \$ -	₹ }		<u>.</u>	_ % }-	7
.1.02	1.01	٠6.	*.	69.	*.	1.00	6.	1.04	ę.	61.	1.00	8.	66.
	1.00	<i>\$</i> .	34.	.62	1.01			1.06	.53	.82	8 .	8.	
66.	1.03	<i>6</i> .	91.	ŧ.	.97	96.	§ .	1.02	. S.	10.	? .	1.01	6.
UMBERS	NUMBERS IN TABLE AR		PRESSURE COEFFICIENTS	MTS C.	秥	1	NUMBERS	IN TABLE	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	COEFFICE		2-6-	
UMBERS PPER = OWER =	NUMBERS IN BOXES IND UPPER = VERTICAL DIS LOWER = HORIZONTAL D	INDICATE FLI SPLACEMEN DISPLACEMEN	DICATE FLOW DIRECTION IN DEGRESS SPLACEMENT, POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR FLOW FOR	N IN URG	9	LEFT SUMEY	UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDI JPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	IS IN BOXES INDICATE FLOW DIRECTION IN DEGYEES. = WERTICAL DISPLACEMENT, POSITIVE FOR UPWASH = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM HIT LOORING AFT.	F. POSTTIVE	IVE FOR PL	SH FROM LI	LEFT SUREY
DIF. I	HOTE TABLE 15 SEEN		-			RACE	NOTE- 1/	BLE 15 SE	TABLE IS SEEN FROM THE ROW	200			MOINTE

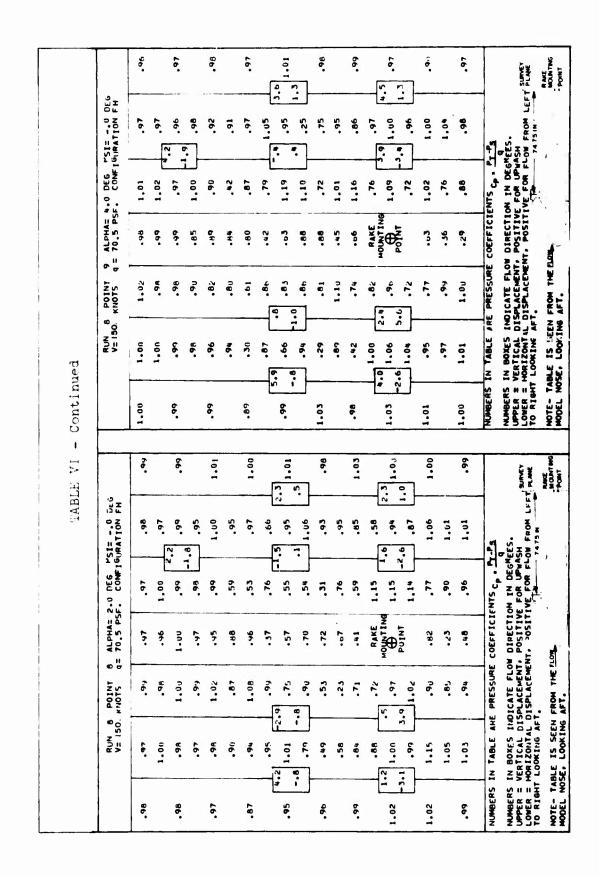
	R _U N	RUN 7 POINT 11	ALPHA= 4.0		DEG PSI=-4.0 D	0E6		RUN 7 V= 100.	POINT	12 ALPHA= 4. q= 32.1 PSF.	0	DEG PSI= 4.0 DI	DE G	
8	8	8	9	3	8	85	6.	.6.	1.00	65.	76.	1.00		96.
•					. 6	•		.98	1.00	1.00	۴.	*. —[°		
.97		6.	1.00			1.01	66.	1.03	1.01	9 .	36.	_		66.
	76.	6.	68.		1.00			1.00	1.00	06.	_			
86.	.81	6.	3.	.97	%.	96.	6.	.9	66.	66.	1.03	۲۰.		66.
	.80	.9.	14.	.97	76.			1.08	1.05	<i>r</i> .	. 72	96.		į
.76	.75	16.	7.	1.01	66.	1.01	۲۰.	.99	·••	60.	99.	. 82		. 97
	• 56	٠٣٠	26.	٤.	-€ -€	[1.01	. 8°	24.		1.63	1.2	
1.02		-2.5	09.	26.	1.03	o	1.00	3.0	2.5	.57				0.
3.71	-5.8	-4.8 .64	64.		.6.5	-2.6		1.05	₹. []-	۲۰.	_		}	
.95	99.	08.	.,	95.	96.	1.0⋴	1.00	1.02		3.	89.	* .	_	1.00
	.85	,5¢.	36.	*0.	*6.			1.03	.81	1.	. 85	1.00		
.97	64.	.84	76.	.21	%.	1.00	1.03	1.05	15.	₹.	*9.	68.		• 96
	-	85.	RAKE	06.	-			1.00	€.	RAKE	1.11	£6.	0.9	
20.1	5.3	2.2	MOUNTING	86.	•	6. 4 86.	1.04	1.00	1.19	Φg	1.08		٥.	1.01
	-6.2	2.8	POINT	1.00	1.02	-1.2		1.	_			\$. -		
1.01	•58	79.	. 25.	66.	66.	66.	1.04	1.00	1.01	1.15	89.	ž*.		.0.
	.72	ი6•	53.	1.01	6.			1.00	6.	1.03	• •	68.	-	
66.	1.04	.93	54.	.95	66.	86.	1.02	1.02	· .	99.	. 52	1.05		1.00
UMBERS	NUMBERS IN TABLE APE	ARE PRESSURE	COEFFICIENTS	INTS C.	PrPs		NUMBER	S IN TABLE	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	RE COEFFICE	ENTS CP :	2 . 6		
PPER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI	S INDICATE FLO DISPLACEMENT	TICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR FUND	N IN DEG	9 TICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPAASH SSPLACEMENT, DOSITIVE FOR FLOW FROM LFFT JUNNET	SURVEY	NUMBER UPPER LOWER	S IN BOXES = VERTICAL = HORIZON	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREËS. UPPER = VERTICAL DISPLACEMENT. POSITIVE FOR PLOW FROM LONER = HORIZONIA DISPLACEMENT. POSITIVE FOR FLOW FROM LONG FLOW	LOW DIRECTI NT. POSITIV MENT. POSIT	TON IN DES	0 2	LEFT SURVEY	ANE
O RIGH	T LOOKING	S AFT.	100	Į,	7475IN.	RACE	NOTE -	TABLE 15 5	TABLE IS SEEN FROM THE FLOW	F FLOW	ţ		29	RAKE
OTE- 1	NOTE- TABLE IS SEEN	FROM THE	1		1	-			•				-	THE

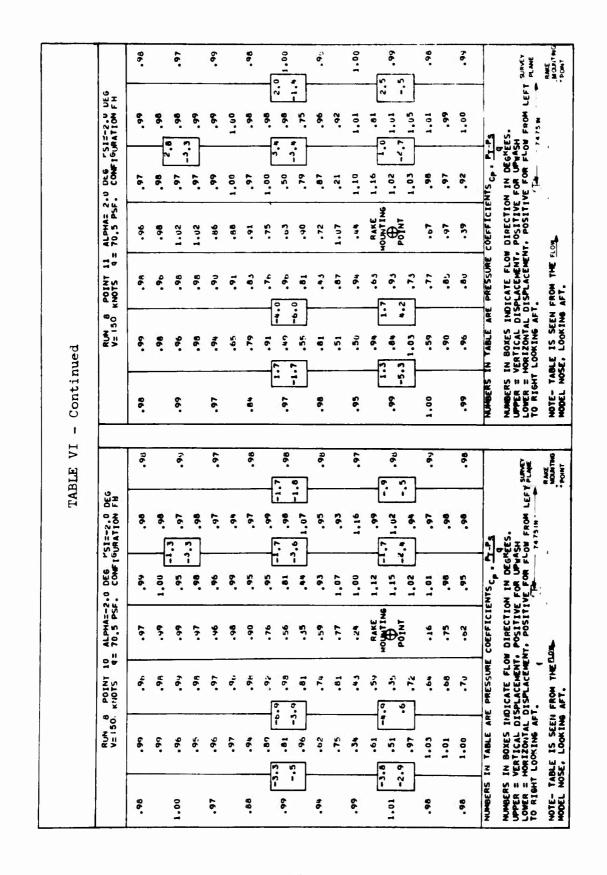
	NUN V=100	RUN 7 POINT 13	3 ALPHA=-4.0		DEG "SI= 4.0 DEG CONFIGURATION FH			RUN 7	POINT 14	= 32.1 PSF.		DEG PSI=-8.0 DEG	9_
66.	76.	6.	85.	76.	86.	я6.	%.	1.00	3.	86.	1,00	66.	10.1
	.98	16.	84.	.97	€. —[.97	δ.	75.	%		_
. 97	66.	.07	6 0	66.	76.	ે6•	.97	₹6.	<i>δ</i> .	87.	66.	1.00	1.60
	96.	ð.	25.	86.	\$. ?]_			·6•	86.	67.	96.	00.1	···
.97	.97	6.	27.	86.	1.00	66.	ę.	1.02	1.03	67.	66.	1.01	÷.
	96.	6	86.	86.	.97			.9 8	1.04	80	1.03	86.	
.7.	.98	6.	۲۶.	66.	1.01	٠,	.72	.93	1.01	7.	1.05	96.	1.00
1	.97	: 	37.	86.	66.			5.	1.07	55.	*.		{
	ę.	76.	54.	96.	86.	•	26.	.8.	1.0.1	52.	*6.	66.	1.00
	66.	1.01	۲۵۰	96.	; ; ;	·-	<u>`</u>	.5.	, s.	57.	%.	ş.	•
96.	.97	.7.	1.10	69.	1.03	. 47	6.	.55	3.	.73	66.	1.uc	1.00
	96.	.23	.55	.53	£4.			6	1.2	1.06	1.06	1.00	
1.01	1.06	ŏ.	67.	\$5.	\$8.	96.	69.	1.01	10.1	*0.	37.	1.03	1.62
1	1.00	ě.	PAKE	\$ 1 .	٠. آ			1.11	; -[PAKE	86.	.*	-{
1.03	é.	9.		60	5	1.01	1.05	-1.0	1.3		. 97	10.1 0.7-	1.2
	6.	*. -	•	os:	J %. [1.04	₹ }		1.0.1] []-	7
1.02	. 9A	6.	æ	16.	76.	6.	96.	*0 ·	.71	ş.	-92	1.00	1.02
	. 67	1.0.1	۶۲.	,54	٥٠.			.76	.34	27.	66.	1.01	
1.01	ŏ.	σ̈.	.72	. 38	95.	ê.	%	••0		. 92	86.	1.00	•
HBERS	MINBERS IN TABLE A	ANE PRESCIPE	E COEFFICIENTS	1	PI-PS		NUMBERS	IN TABLE	ARE PRESSURE	COEFFICIENTS	ENTS CO #	Pr - Ps	
NUMBERS UPPER = LOWER = TO BIGHT	NUMBERS IN BOXES 1:00 IUPPER = VERTICAL DISPLOYER = HORIZOLIAL DI	PEDICATE FLOOISPLACEM	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DESMESS. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO BIGHT HOWITH ALD DISPLACEMENT, POSITIVE FOR FLOW FROM	N IN DES	E Ca	LEFT SAME	NUMBERS UPPER =	IN BOXES VERTICAL HORIZONI	INDICATE FLOW DISPLACEMENT: AL DISPLACEMENT	T. POSITIVE INT. POSITIVE	DIRECTION IN DEGREES POSITIVE FOR UPASH	FROM	LEFT SURKY
OTE- TA	BLE IS SEE	NOTE- TABLE IS SEEN FROM THE ROW	now.	Ξ,		Share Share	NOTE - T	TABLE IS SEEN	ROM THE	100	<u>.</u>	7475W	RAKE
MODEL NO	NOSE . LOOK ING AFT.	46 AFT.	-			Ē	MODEL W	DSE, LOOKING	AFT.	}			PONT

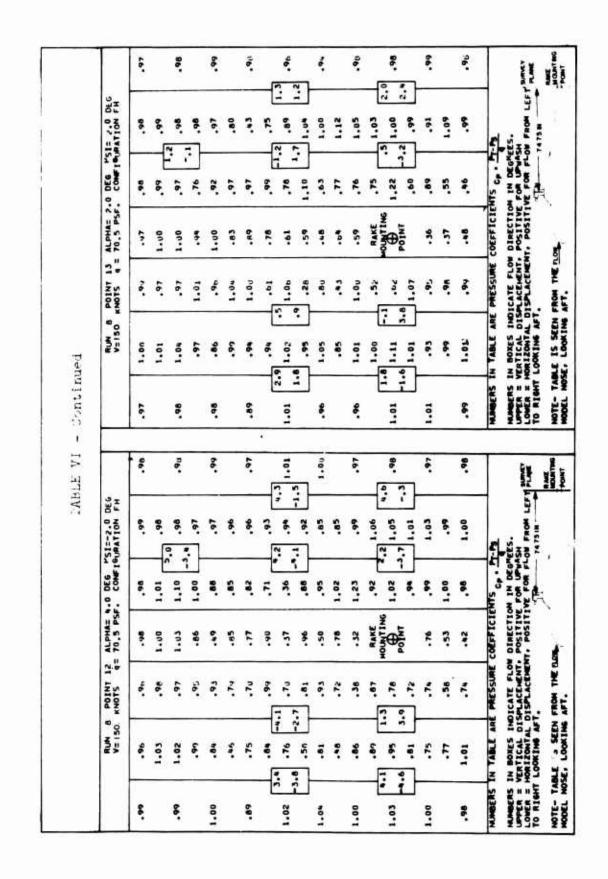


NEIN 7 POINT	17 ALPHA= .0	_	DEG "SI= 8.0 DEG			RUN 8	B POINT 5	ALPHA= .0	_	DEG PSI=0 DEG	
۰.	96.	1.00	66.	1.00	86.	.97	96.	76.	10.1	86.	.9.
1.01	1.01	ş.	%. —[•			6.	6.	86.	86.	.6.	
1.02	1.03	8.	66.	96.	6.	96.	6.	5.	8.	.98	96.
.98	1.00	٠ <u>.</u>	·6.			96.	.97	97.	: •.	٠٠. و.	
	1.01	1.04	66.	96.	6.	76.	.98	.75	.97	96.	.98
.97	1.00	1.02	16.			•95	*6.	57.	86.	.93	
ě.	1.03	8.	98.	66.	.87	09.	.88	*	6.	96.	96.
*.	1.00	1.05	84.		-	۴۰.	÷.	11.	1.00	% .	_
1.07	64.	1.02		.95	1.02	1.00	3.9-	.84	_	.91	4·-
1.1	99.	8.	`; * ?}	_ ת		•	1.02	.72	۲. ت	. %.	~]
1,08	98.	£.	\$.	%	* .	ą.	.82	.05	6.	76.	%
6.	.,	9.	.27			.97	.80	.33	8.	1.13	
.97	.53	\$.	61.	.93	\$.	.56	•59		1.02	*	96.
1.00	RAKE	s.	*. *.			1.04	9 .	RAKE	1.17		-
2.7	e Paris	16. 28	.1 .70 -24.0	0 1.02	1.02	2.4 1.07	4. 6 8. 8	POINT	د د	9. *.	4. c.
1.01	1.06	2.	1.03	•	1.00		: : -	•	. 3.	. ». —	* -
1.03	06.	•	3.			٤.	.72	•	٠.	86.	
1.01	1.14	27.	.76		8.	8.	1.07	?	8.	.97	
NUMBERS IN TABLE ARE PRESSU	PRESSURE CUEFFICIENTS C. Pr-P	NTS Co. P.	47	T	NUMBERS	IN TABLE A	ARE PRESSURE COEFFICIENTS	COEFFICI	ENTS C. Pr.Ps	- F	-
NUMBERS IN BOXES INDICATE FI UPPER = VERTICAL DISPLACEMENT TOWER = HORIZONTAL DISPLACENT TO RIGHT LOOKING AFT.	PLACEMENT, POSITIVE FOR UPLASH SPLACEMENT, POSITIVE FOR UPLASH SPLACEMENT, POSITIVE FOR FLOW P	N IN DEGRE	0 1	LEFT SUMMY	UPPER = 1	NUMBERS IN BOXES IND UPPER = VERTICAL DIS LOWER = HORIZONTAL D	IN BOXES INDICATE FLOW DIRECTION IN DEGREE VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZOMIAL DISPLACEMENT, POSITIVE FOR FLOW	N DIRECTION POSITIVE	ON IN DEGMEES	. 0	LEFT SURVEY
NOTE - TABLE IS SEEN FROM THE FLOW	E FLORE			PAME MOUNTING	NOTE- TAI	TABLE 15 SEE	IS SEEN FROM THE FLOW	TON			HOL

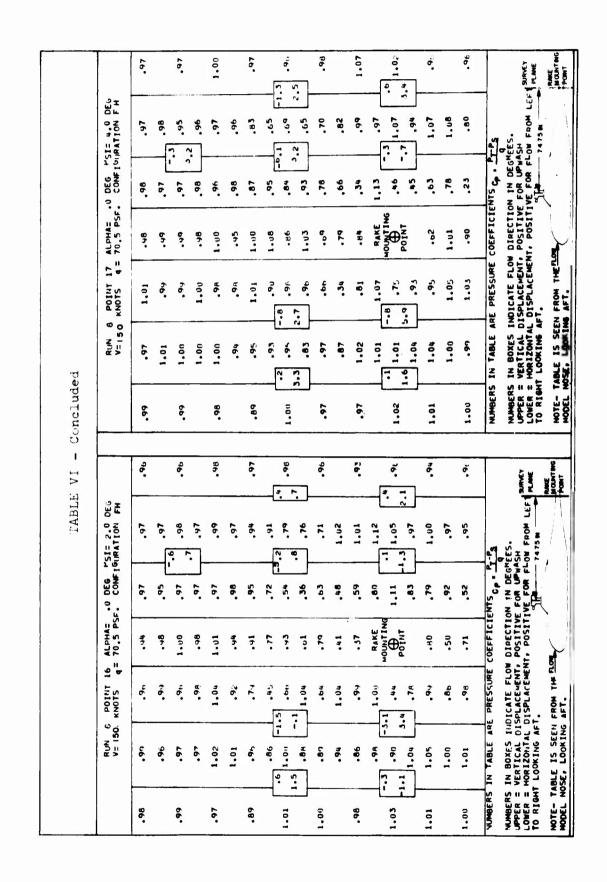
	RUN 6 V= 150.	POINT 6	ALPHA=-4.0 = 70.5 PSF.	CONF	DEG "SI=0 DI	DE6		RUN V= 150.	POINT	7 ALPHA=-2.0		DEG PSI=0 DEG	o _
8.	96.	1.00	10.	1.00	96.	66.	8.	8.		66.	1,00	\$6:	. 40.
	86.	8.	1.00	\$.	*.			8.	· ·	66.	8.	*.	
1.02	6.	96.	1.01	8.	1.00	96.	8.	8.	96.	1.02	6.	66.	.97
	.98	96.	86.	; :	* *			٤.	6.	1.02	*.	*. :}-	
66.	8.	.97	76.	%.	66.	86.	66.	1.01	1.00	1.01	۴.	%.	.96
	1.00	1.01	86.	8.	76.			8.	86.	\$6.	.97	.97	
8.	8.	۴.	1.00	۶.	76.		.8.	*.	٤.	*	%.	8.	.97
	1.02	* -	1.03	*.	ş.		1	4.	š .	16.	٠.	\$.	[
8.	.86	ę.	67.	*	96.	1.00	8.	3	*0·	<i>r</i> .	8.	%	96.
	; ;	-1:0 -2:	.83	·.	10:1	 :}		: ;	;	.78	·.	. se.	?}
96.	9.	39.	۲.	1.0	9.	8.	8.	ą	••	1.16	۲.	.92	96.
	1.07	.58	6.	60.	1.04			19.	ž.	.51	8.	8.	
.97	69.	.59	84.	*.	1.00	6.	1.02		1.04	70.	S	§ .	96.
L	1.12	₹.	RAKE	ş	86.		·		-[RAKE	*:-	1.04	⊣ ;
8.1		3.5	Š⊕ Š Ni	۲. ۲.		96. 6.	1.02		3.2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.02		.5
	.6.			\` - -	_ * 			֓֞֝֟֝֝֟֝֟֝֝֟֝֝֟֝֝֟֝֝֝֟֝֝֝֡֝֝֡֝֝֡֝֝֡֝֝֡֝֝֡֡֝֝֡֡֝֡֡	₹ }-			* *	1
1.00	* .	6.	• 52	6 .	96.	96.	1.00	8.	.	•8•	e .	26.	.97
	1.03	•\$•	.62	\$.	8.			%.	۴.	•5•	1.0	86.	
86.	1.01	6 .	10.	6.	76.	6.	1.01	. 1.03	€	.51	1.02	6.	
MBERS	NUMBERS IN TABLE AR	RE PRESSUR	PRESSURE COEFFICIENTS	ENTS C.	4	1	NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. P. P.	RE PRESSUR	E COEFFICIE	ENTS C.	12	
PPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGNES. UPPER = WENTICAL DISPLACEMENT, POSITIVE FOR PLOW FROM LOWER = MORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM	NDICATE FLO ISPLACEMENT DISPLACEMENT	I. POSITIVE	ON IN DEG	MEES. ASH LOW FROM L	LEFT SURVEY	NUMBERS UPPER =	MUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWAYN LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW I	NOICATE FL.	DW DIRECTION T. POSITIVE ENT. POSIT	ON IN DEG	10	LEFT SURVEY
WIN O	T LOOKING A	FT.	100		- 7475 M	3	3 N	TO RIGHT LOUKING AFT				MI 57 47 -	RAKE
	MOTE- TABLE IS SEEN	N FROM IN	1		1	NO INCIDENT	-3108	ABLE 13 XE	TABLE 13 SEEN PROP IN THE				-

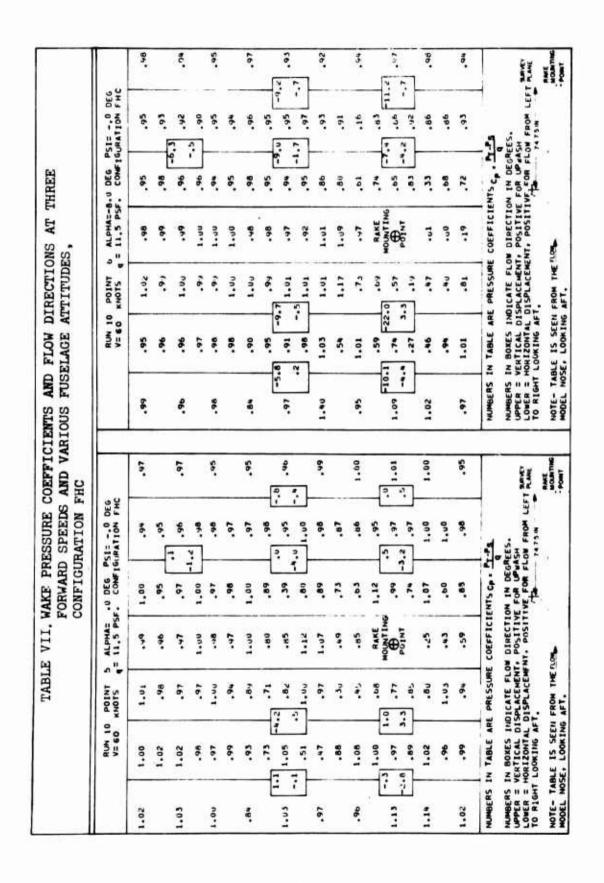




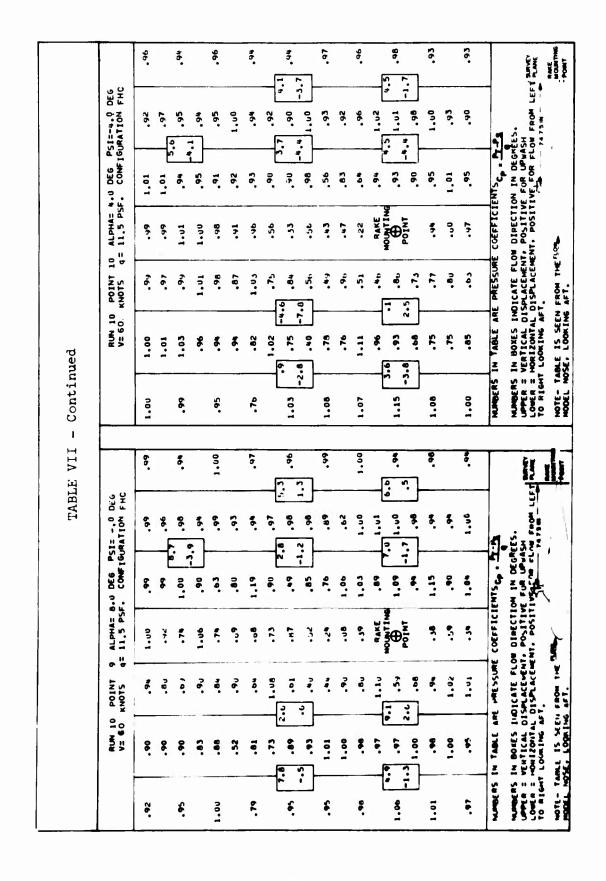


99 99 99 1.01 99 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 99 1.01 99 1.01 99 1.01 99 1.01 99 1.01 99 1.01 99 1.01 99 1.02 99 1.03 99 1.01 99 1.02 99 1.03 99		RUN 8 V= 150.	B POINT 14	ALPHA=	٠.	DE6 PSI=-4.0 DEG			RUN 6 V= 150.	POINT 15 KNOTS 9	ALPHA= .= 70.5 PSF.	0	DE6 PSI=-2.0 DEG CONFIGURATION FH	9.1
1.96 1.01 1.95 1.01 1.96 1.01 1.97 1.00 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.96 1.01 1.01 1.02 1.01 1.01 1.02 1.01	66.	.96	56.	96.	76.	76.	96.	8.	%.	.97	65.	. 95	96.	1.01
1.01		.98	1.00	\$6.	L	-			.98	\$.	1.01	L	ار. و.	
1.05 1.039696979999999999	.97	6.	ξ.	86.		<u> </u>	.97	.97	1.00	.97	1.00		86.	1.00
1,01		.95	1.03	95.		•			96.	6.	1.01		٠ <u>٠</u>	<u> </u>
-2-0 -91	.97	٠.	1.00	5.	76.	66.	86.	.97	*	ş.	*	76.	96.	66.
-3.6		96.	1.01	*	.97	66.			\$	8.	.95	.97	8.	
-3.6	.88	16.	.72	1.06	56.	8.	. 67	98.	\$	1.00	00.	.92	96.	86.
-3.6	Ü	.87	_	.42	86.	_			.98	_	.83	į	* —	—[
-4.6		.58		1.09		1.03	_=		.0		.63	-	96.	1
-4.6 1.05 .99 .99 .99 .99 .90 .90 .90 .90 .90 .90		.03		1.09				•	 -%		*	3	· .	·:}
-4.6	69.	.75	6	.76	1.07	66.	66.	96.	8.	69.	.26	.61	6.	1.00
-4.6 1.01 -2.2		.93	.6.	84.	1.00	66.			.92	.58	07.	,5¢	1.04	
-4.6 1.01 -2.2	66.	.9.	.54	٠٠.	%.	1.00	76.	6.	1.00	1.03	.92	.27	8.	1.00
-4.6 1.06 1.5 .73 POINT .99 .09 1.01 -2.7 1.01 3.5 .74 MOUNTING 1.03 -1. -4.6 1.06 1.5 .02 .08 .98 .95 .99 .99 .99 .99 .99 .99 .99 .99 .99	Ľ	1.01		RAKE		1.02			.79	_	RAKE	% .	1.04	\dashv
1.06	•	.91		S N N N N N N N N N N N N N N N N N N N	6.	1.01		<u>.</u>	1.01		M T M T M T M T M T M T M T M T M T M T	1.03	8	76.
.85 .85 .80 .96 .99 .99 .99 .99 .99 .99 .99 .99 .99		_	_		.97] 20.1[<u>.</u>					1.00	:}-
1.02 .95 .95 .96 .99 1.02 .95 .96 .96 .96 .96 .96 .96 .96 .96 .96 .96	1.01	.05	9,	£.	96.	56.	66.	8.	8.	9.	.92	.97	1.01	96.
ICTENTS C 96 97 99 1.02 65 50 . 98 ICTENTS C M. MUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C ET ITVE FOR UPWASH SITIVE FOR UPWASH SITIVE FOR PLOY FROM LEFT FLAME TO RIGHT LOOKING AFT.		\$6°	00.	**.	1.03	76.			69.	.77	0	56.	86.	
CTION IN DEGREES. NUMBERS IN BUXES INDICATE FLOW DIRECTION IN DEGREES. NUMBERS IN BUXES INDICATE FLOW DIRECTION IN DEGREES. LOPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPAR ENORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FLOW FLOW FOR FLOW FLOW FLOW FOR FLOW FLOW FLOW FOR FLOW FLOW FOR FLOW FLOW FLOW FOR FLOW FLOW FLOW FLOW FLOW FLOW FLOW FLOW	8.	•	.9.5	• 52	1.02	% .	76.	8.	1.02	€.	• 50	8.	96.	•
CTION IN DEGNEES. ITVE FOR UPWASH SINCE LOWER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT.	UMBERS	IN TABLE	PE PRESSURE			1:1		NUMBERS			COEFFICIE	13	4.	\downarrow
RAME IN TANK API.	NUMBERS LOPPER = LOWER = TO RIGHT	IN BOXES I VERTICAL C HORIZONTAL	INDICATE FLO SISPLACEMENT OISPLACEMENT ET	DW DIRECTIC T. POSITIVE ENT. POSITI	N IN DEG	MEES. ASH LOW FROM LEF	Same I	Su 11 5	IN BCKES IN VERTICAL DI HORIZONTAL	ADICATE FLO ISPLACEMENT UISPLACEME	" POSITIVE NT. POSITI	E FOR UPLA	FROM	LEFT SURVEY
NOTE - TABLE IS SEEN FROM THE PLOW	WOTE- T	WELE IS SEE	N FROM THE	7	₹.		R AVE MOUNTING	MOTE- TA	BLE IS SEEN	FROM THE	104		74751	RAKE





LEFT SARVEY RANE RANE RANE RANE RANE RANE RANE RANE	1 0	NTS CP PT-PS NTS CP PT-PS FOR UPWASH VEFFOR FLOW F	E COEFFICIENTS OW DIRECTION I T, POSITIVE FOR	ARE PRESSURE INDICATE FLOR DISPLACEMENT L DISPLACEMENT AFT.	ש א∟א ש	S S	LEFT SARVEY PLANE	6 6 M	TOTENTSC, FL-8 CTION : N DEGREFS, TIVE FOR PLON FOR FLOW FILE FOR FLOW FLOW FLOW FLOW FLOW FLOW FLOW FLOW	# # # 25g	ARE PRESSURE COEFF INDICATE FLOW DIRE DISPLACEMENT, POSI IL DISPLACEMENT, POSI AFT.	NUMBERS IN TABLE ARE PRESSURE CON NUMBERS IN TABLE ARE PRESSURE CON NUMBERS IN BOXES INDICATE FLOW DUPPER = VERTICAL DISPLACEMENT, PROME HORT LOWING AFT.	
1.00	1.01	1.04	*	1.03	1.01	1.11	.93	. 7.		0	19.	1.07	
٠.]	*:		POŢNT		.98	<u>ال</u> ة	• L				**:	.85	: L
**	03.1	, vo.	RAKE MOUNTING	1.05	1.00	1.17	-2.6	. 82	25. 47.	POLNTING POINT	5.5 3.1 3.1	8. 8.	
86.	96.	1.00	.58	79.	%	1.01	96•	96.	.51	**.	.6.	.54	
	.6.	9.		. 37	.92			.92	08.	98.	٠٢.	.82	
3	; ;	3 3	3.	. %	:	ē.	.95	.67	.57	1.05	.71	.89	
9.6	66.	8. 3	07.	.3	1.06	66.	*	3, 3,	.93	1.02	6	1.06	7
2		- 1			.72	ι		.92	[- *.	76.	÷.	86.	
86	*6.	1,03	88.	ý, 8°	. •. •	90.	. 97	 	26.	· ·	50.1 96.	\$ *	
.95	66.	1.00	6.	£6.		1.01	.97	*6*	0 6 .	.93	86.	66.	
,	8 8.	*.	95.	*6.	1.01			£6.	<u>.</u> و	76.	1.00	66.	
*			7.	16.	76.	1.00	*6.	8.	i	84.	.97	6.	
. 07	. 95 8	96.	67. 10	.6.	1.01	1.03	ð.	. 95 . 95	.00.1	80 80 7.	.93	ş. ş.	
	DEG PSI= .0 DEG		ALPHA= 4.	POINT 6 KNOTS Q	RUN 10			PSI=0 DEG	CONF	7 ALPHA=-4.	FOINT KNOTS	XON 10 V≡ 60.	-



	RUN 10 V=60.	FOINT 11 KNOTS 4	= 11.5 PSF.	ODEG P	DEG PSI=-4.0 DEG	<u>ه ت</u>		RUN 10	10 POINT 12 0. KNOTS q	2 ALPHA=-8.0 = 11.5 PSF.		DEG PSI=-4.0 DEG	. 0
66.	%.	66.	66.	66.	98.	96.	€.	.93	86.	86.	1,00	16.	1.02
	66.	1.02	1.01	1.00	*.			86.	6.	76.	s.	٠. و.	
66.	.97	96.	96.	. se.	1.00	.97	86.	86.	.97	85.	1.02	1.00	1.03
	96•	1.00	1.02	8.	6.			.93	1.00	86.	1.02	20.1	
.96	96.	96.	1.00	1.00	66.	86.	.93	.92	.97	86.	1.00	1.00	66.
	1.00	1.00	1.00	*6.	86.			.93	%	۲٠.	1.01	1.03	
.79	%	66.	86.	76.	66.	8.	.78	.87	1.00	76.	1.02	10.1	70.
	86	-	1.02	8.	8		Ŀ	ة آ-	٠٠.	75.	1.03	1.02	_ [:
.91	86.	-9.9	.92	%	.97	-3.8	.93	96.	96.	76.	86.	1.00	96.
-	_	#6.	1.00	1.05	-5.0	25.7			1.00	1.00	%.	1.00	:
1.05	.92		89.	.92	%	8.	8.	.93	1.00	*	1.02	1.00	1.01
	66.	.58	.64	30	6.			16.	.78	98.	1.03	76.	
1.02	.62	.59	35.	.53	86.	8.	.81	6.	.5.	St.	.93	96.	66.
			RAKE	1.0	1.00					RAKE	. 6.	1.03	_[-[-
1.09 -3.8	.92	-10.0	Polint NG	1.00	THE STATE	-2.9	00.1	۲. ۶	3.2 54	ΦŞ	28.	1.00	-1.9
		59.	•	1.00		* }	1.07	٤.		.31]]]	: -
1.12		6 6	? *	. 6	66			.59	ě.	.53	%.	1.00	
1.01		. 8	1.04	. 8.	86.	8.	.92	8.	÷.	•10	1.06	1.01	6.
IMBERS	NUMBERS IN TABLE ARE	RE PRESSURE	E COEFFICIENTS C.		감		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS	E COEFFICE	ENTS Co . PT-PS	5	
MBERS	IN BOXES IN	ISPLACEMEN	T. POSITIVE	ON IN DEG	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH OF THE PROPERTY OF THE PROPERTY OF THE FOR	SET SURE	NUMBERS UPPER = LOWER =		IN BOXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW I	OW DIRECTI T. POSITIV ENT. POSIT	IVE FOR UPW	FROM	LEFT PLANE
TE- TA	TO RIGHT LOOKING AFT.	FROM THE			- 7475 IN	RAKE	NOTE - T	TABLE IS SEEN FROM	AFI.	Pos	1		RAKE

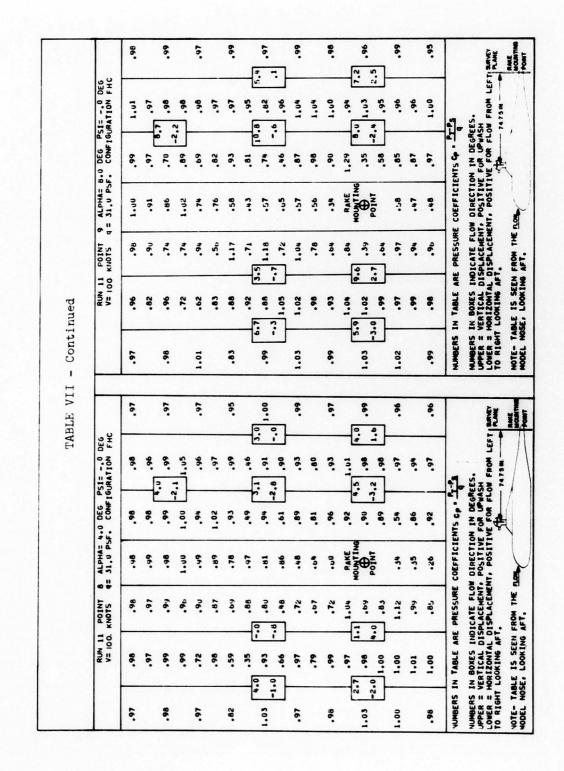
	RUN 10 V= 60.	POINT 1.	3 ALPHA=-8.0		DEG PSI= 4.0 DEG CONFIGURATION FHC			RUN 10 V=60.	POINT 14 KNOTS 9	ALPHA=-4.0	ODEG PSI= 4.0	I= 4.0 DEG	
66.	%.	1.01	96.	1.02	6.	96.	1.02	86.	96.	96.	%.	86.	16.
	1.00	1.01	1.00	·	ş.			86.	8.	1.00	· ·	%.	
10.1	86.	1.00	1.01	.93	76.	16.	.97	.97	1.01	1.02	.69	26.	8
	66.	1.01	1.03	*.	*.			16.	96.	97.	\$.	_	
66.	10.1	10.1	1.01	* .	.93	\$6.	96.	.97	1.01	1.01	8.	.97	96.
	1.00	1.00	1.06	8.	\$6.			8.	6.	16.	56.	\$6.	
.05	.93	1.02	1.01	.97	96.	8.	.63	8.	.97	96.	.97	.95	96.
	.98	1.03	*	8.	8.			\$	*. —[. 24.	*.	1.00	
1.02	.97	-8.6	1.00	66.	8.	96.	8.	8.	.6.	69.	%.	.82	96.
	3.0	2.2	1.04	1.00	2.8 3.	• •	~		٠٠. ١٠.	68.	. 8.	*.	7
96.	1.03	*	1.12	.63	.77	\$6.	£.	*.	8.	•5•	*	. 65	.93
	1.03	.89	95•	56.	95.			1.00	1.03	.82	88.	99.	-11
.97	1.04	.73	.55	.72	86.	16.	.97	1.02	.58	9	10.	\$6.	96.
	1.15	۰6.	RAKE	96.	06.		-	.87	₹ —	RAKE	9.	.82	_[:
=======================================	•	N .	HOUNTING TO	ŝ	_	.95	1.09	1.1	£.	Polivi	.55.	ç6.	2.5
	1.00	; ;		.76	.62	- :1		- - -	\$. -		_	78.	
1.07	••	10.1	.70	• 56	8.	\$6.	1.01	8.	1.02	٤٠.	59.	2.	.93
	* .	ě.	*0.	.28	•			1.03	8.	97.	3.	99.	
8.	1.02	1:14	. 32	85.	·	\$6.	٠6.	1.02	ş.	1.33	ş.	06.	ŧ.
MBERS	NUMBERS IN TABLE AR	RE PRESSURE	E COEFFICIENTS C.		扎		NUMBERS	IN TABLE A	ARE PRESSURE COEFFICIENTS CP . PT-PS	COEFFICIE	INTS Co . P.	49.	
MBERS PER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = MORIZONTAL DI	NOICATE FL ISPLACEMEN DISPLACEM	T. POSITIVENT. POSIT	ON IN DEGR	OICATE FLOW DIRECTION IN DEGREES. SPLACEMENT POSITIVE FOR UPASH DISPLACEMENT, POSITIVE FOR FROM LEFT PLANE	T PLANE	NUMBERS UPPER =	UPPERS IN BOXES IND UPPER = VERTICAL DISI	S IN BOXES INDICATE FLOW DIRECTION IN DEGREES. WERTICAL DISPLACEMENT, POSITIVE FOR HOW FROM HOME AND DISPLACEMENT, POSITIVE FOR FLOW FROM THE FORTING ACT	N DIRECTIC T. POSITIVE INT. POSITI	N IN DEGR	SH FROM LE	LEFT PLANE
TE- T	TO RIGHT LOURING AFT			1		RAKE	NOTE - TA	TABLE IS SEEN FROM	N FROM THE FLOW	TOW	•		RAKE

1.01 1.01 1.00 1.01 1.00 1.01 1.00 1.01 1.00		RUN 10 V= 60.	POINT I	15 ALPHA= 4.0	-	DEG PSI= 4.0 DEG CONFIGURATION FHC	99		RUN 10	POINT 16 KNOTS 9 =	ALPHA=	9	DEG PSI=-8.0 DEG	. n U
1.02 .96 .97 .99	10.	1.01	1.00	1.01	66.	56.	96.	1.03	1.01	.9.	76.	96.	36.	1.01
1.01		1.02	46.	77.	.6.				1.00	.97	*	L	-	
1.03	10.	1.01	86.	76.	86.		\$6.	6.	6.	6.	*.			\$6.
1.03 .99 .92 .92 .99 .99 .99 .99 .99 .99 .99		8.	86.	1.00	*.				96.	· .	*			
1.03	.01	1.03	.97	60.	.79	99.	86.	1.00	86.	26.	3.	86.	96.	••
1.00		1.03	86.	08.	.92	65.			6.	.9.	*	.95	86.	
1.00	*	6.	1.02	57.	06.	87.	96.	.,	\$.	<i>*</i> .	*6.	1.00	76.	.97
1.00		1.00		31.	8.		_ _[96.		06.	٠. د		
2.6 93 2.6 1.03 1.24 1.9 1.5 2.8 1.04 1.05 1.05 1.01 1.05		00.1	*	100	.70				86.		66.		.97	66.
1.09		.93	9	.57	1.24		2.8	۴_	*9:	_	1.01		66.	7
1.09 1.09 1.01 1.00 1.02 1.03 1.03 1.01 1.00 1.02 1.03 1.03 1.03 1.03 1.03 1.04 1.04 1.05 1.05 1.05 1.06 1.06 1.06 1.07 1.07 1.08 1.08 1.09 1.08 1.09 1.08 1.09 1.09 1.08 1.09 1.09 1.09 1.09 1.09 1.09 1.09 1.09	.02	\$6.	ş.	.42	.38	18.	*6.	.78	.93	0.4.	.50	.97	6.	
3.3		1.09	16.	72.	09.	1.00			.55	8.	07.	56.	5 .	
3.3 .96	.01	.93	.5.	.57	7.	1.07	1.00	.87	1.15		87.	1.02	\$6.	1.00
3.3 4.6 1.03 4.6 1.04 MOUNTING .63 2.1 62 4.6 1.01 MOUNTING .63 2.1 1.03 4.6 1.00 MOUNTING .63 2.1 1.03 4.6 1.00 1.02 1.03 1.03 1.00 .96 1.00 1.02 .80 7.7 2.0 3.1 1.00 1.00 1.00 .96 1.00 1.00 1.00 .96 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0			**	RAKE	-	£.	— [59.		RAKE			- [:
1.00 1.02 .80 .72 .53 .97 1.06 .86 1.00 .91 .92 1.01 1.01 1.03 1.00 .91 .92 1.01 1.01 1.00 1.00 .98 1.01 .92 .97 1.01 1.00 1.00 1.00 .98 .55 .48 .76 .92 .96 .77 .75 .86 .96 1.01 1.01 1.01 1.01 1.02 1.00 1.00 1.00		1.03	9	MOUNTING H							₹ •	8.		66.
1.00 1.02 .40 .72 .53 .97 1.06 .86 1.00 .91 .99 1.01 1.00 .98 .55 .48 .76 .92 .98 .77 .70 .86 .96 1.01 1.00 .98 .55 .48 .76 .92 .98 .77 .70 .86 .96 1.01 ISSIN FIRE ARE PRESSURE COEFFICIENTS Cp. Pr.* INMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. Pr.* INMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. Pr.* INMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. INMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. Pr.* INMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. INDI		1.00	2	Polni			;}	· ·			e lo	1.00	-	7
1.00 .96 .55 .48 .76 .92 .97 .70 .98 .77 .70 .96 .101 IS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT. 8 INUMBERS CP. PT. 8 INUMBERS COEFFICIENTS CP. 8 INUMBERS COEFFICIENTS COEFFICIENTS CP. PT. 8 INUMBERS COEFFICIENTS COEFFICIENTS CP. PT. 8 INUMED CP. PT. 8 INUMBERS COEFFICIENTS COEFFICIENTS CP. PT. 8 INUMED CP. 8 INUME	.13	1.00	1.02	08.	.72	\$5.	. 47	1.00	98.	1.00	16.	6.	10.1	96.
PRESSURE COEFFICIENTS C. PT. S. W. WHORERS IN TABLE ARE PRESSURE COEFFICIENTS C. PT. S. W. WHORERS IN TABLE ARE PRESSURE COEFFICIENTS C. PT. S. W. WHORERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. NUMBERS IN BOXES INDICATE FLOW PROM THE FROM THE FROM THE FROM THE FLOW FROM FROM FROM FROM FROM FROM FROM FROM		66.	1.04	18.	69.	.78			1.03	19.	. 42	16.	1.01	
DRESSURE COEFFICIENTS Cp. PT. B. NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT. NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT. NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT. NUMBERS IN TABLE ARE PROBLEMENT POSITIVE FOR UPPER PARKET AND TO SELVENT DISPLACEMENT. POSITIVE FOR UPPER PARKET AND THE TABLE TO RIGHT LOOKING AFT. NOTE TABLE IS SEEN FROM THE PARKET.	0.02	1.00	96.	ş.,	9.	٠,	.92	8.	<i>r</i> .	٠,٠	98.	۶.	1.01	••
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. PATOM PASH OPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH ONER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW ONER THE TOOK ING AFT NOTE TABLE IS SEEN FROM THE TABLE ONER TABLE IS SEEN FROM THE TABLE TABLE IS SEEN FROM THE TABLE IS SEEN FROM THE TABLE T	UMBERS	S IN TABLE AL		E COEFFICI	ENTS CP .	4.		NUMBERS	IN TABLE	RE PRESSURI	E COEFFICE	ENTS C.	ZĮ.	
FOOD THE FLOW NOTE - TABLE IS SEEN FROM THE PLOWER INC.	PPER :	S IN BOXES I	NDICATE FLY ISPLACEMEN' DISPLACEMEN	T. POSITIVE	E FUR UP	GREES. WASH FLOW FROM L	EF 1 PANE	NUMBERS UPPER =	IN BOXES I VERTICAL D HORIZONTAL	NDICATE FLO ISPLACEMEN DISPLACEM	OW DIRECT! T. POSITIVENT, POSIT	ION IN DE	GREES.	13
	O RIG	HT LOOKING A	FT.	ALC:			PARE BOURTIES	NOTE - T	T LOOKING A	N FROM THE	PAGE .			100

	6. 6.	-	ALPHA .U DEG PG 11.5 PSF. CONFIG	DEG PSI=-4.0 DEG			RUN 10	POINT 18	ALPHA= = 11.5 PSF	-	CONFIGURATION FHC	
	e. e. :	76.	16.	96.	66.	1.00	16.	1.01	65.	76.	*6 °	96.
	6.	10.1	₹.	ę.			.93	1.00	65.	ş. '	*. —[•	
· ·	•	8.	16.	36.	66.	6.	6.	1.01	1.00	36.	96.	76.
	?0.1	Fr.	2.6.	ن و.			8.	6.	66.	. 36.	₹ :`L	
.30 .42	.6.	6.	26.	%.	66.	76.	8.	<i>\$</i> .	1.02	ş.	₹6°	.95
	.6.	۶.	* .	%.			86.	.97	74.	1.02	58.	
	6.	ş.	8.	\$6.	75.	.82	1.03	.9e.	1.02	1.01	26.	3.
.51			ş.	*.			86.	1.03	98.	8z.	₹. -	-[-
3.	. 9°	Šė.	8.	\$.	٠٠.	8.	16.	59.	3.	٤.	*s.	26.
. si.	1.00	*	· ·	\$. 5.	 ;}		». 	٠٠. <u>۲</u>	28.	. 98.	. sc.	:7_
.54	3.	51.	.87	36.	8.	86.	69.	.6.	3.	ç.,	3.	66.
	۰6.	7	S ••	\$6.			8.	£4.	24.	76.	1:14	
.54 .56	6.	54.	oę.	76.		ę.	66.	65.	3.5.	65.	*6.	66.
-F.	÷ 	RAKE	1.0.1	26.			.93	€	RAKE	٤.	3.1	
-3.6 .98	3. 7.8 3. 7.8	Por Per Per Per Per Per Per Per Per Per Pe	8. 8	1.2 1.00	1.5 -2.1	· -	26. 0.1	1.6. 5.6.		5. 8	1.8 .98 5	5.2
	} .€	.3.	. *.		٦. چ		•	: ÷	7.	. 6.	. ⁶ .	٠ •
	.2.	3.	56.	6.			96.	1.00	1	.37	07.	
64.	÷.	1.03	۶.	86.	ŧ.	%.	.97	*6.	٥,	s6.	69:	96.
NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS	NTS Pr-P	,		NUMBERS	NUMBERS IN TABLE A	ARE PRESSURE COEFFICIENTS C. P. P. P.	COEFFICIE	NTS C.	<u>1-1-8</u>	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT POSITIVE FOR UPWASH LOBER = HORIZONTAL DISPLACEMENT POSITIVE FOR FROW LEFT	ISPLACEMEN DISPLACEMEN	OW DIRECTION TO POSITI	FUR UPWA	EES. SH FROM LEF	T- SAME	NUMBERS UPPER =	NUMBERS IN BOXES INDI UPPER = VENTICAL DISP LOWER = HORIZONTAL DI	HUMBERS IN BOXES INDICATE FLOW DIRECTION IN DECREES. LOMER = WENTICAL DISPLACEMENT, POSITIVE FOR UPASH LOMER = HORIZONIA DISPLACEMENT, POSITIVE FOR THE PASH TO BE A PORTION OF THE POSITIVE FOR THE PASH PROPERTY OF THE PASH PASH PASH PASH PASH PASH PASH PASH	W DIRECTION POSITIVE	FOR UPAR	IS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. = VENTICAL DISPLACEMENT POSITIVE FOR UPASH = MORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FEOW LEFT BANKE. = NOR FOR FLOW FOR FLOW FOR PASH BANKE.	T. SURVE
NOTE- TABLE 15 SEEN	N FROM THE PLONE	PLON.			MOUNTHS.	NOTE - TA	BLE IS SEE	NOTE - TABLE IS SEEN FROM THE ROW	no.	Į,		MOUNTING

6.	RUN 10 V= 60	POINT	19 ALPHA=	-	DEG PSI= 8.0 DEG CONFIGURATION FHC	ىو.		RUN 11 V= 100.	POINT KNOTS	5 ALPHA=	2	DEG PSI=0 DEG	o ي د
	66.	1.01	65.	96.	86.	76.	76.	16.	1.00	75.	16.	16.	66.
	66.	1.00	67.	8.	ş.			16.	.97	72.	*.	ş. 	
.97	1.00	1.00	76.	1.00	.99	1.02	.60	8.	.97	87.	86.	86.	76.
	66.	ę.	1.02	1.02	0.1			6.	6.	66.	%.		
1.00	96.	16.	1.00	1,03	66.	87.	8.	6.	4.	86.	86.	76.	÷.
	%.	16.	86.	96.	86.			\$6.	46.	76.	56.	1.00	
.87	76.	.97	1.00	1,06	16.	1.00	.62	%.	16.	.92	%.	86.	66.
	.94	96.	65.	%.	.72		1	*	~.	57.		₹. -	-f
96.	- 76.	0	75.	.72 -4.1	.78	-7.4	1.00	8.	-3.5	18.	. 07.	26.	3.1
	1.61 - 95	.9.	67.	.87	5.	۶.6	-]	 %.	-:- -:-	.83	.2	- 3. ?	<u>?</u> }
76.	1.02	86.	9.	65.	.52	.82	.95	0.	08.	67.	.	96.	76.
	66.	ē.	85.	*5.	75.			8.	6.5.	17:	87.	.92	
76.	1.00	1.04	95.	*5.	.73	6.	8.	38.	₹.	12.	.23	6.	66.
	1.01	.9,	RAKE	.20	.80		1	86.		RAKE	۶. ا	اً. ئ	-[
1.10	16.	· 6.	HOUNTING	1,32	06.	-5.2	1.03	, £	-2.0		1.0	10.1	
•	2 395 2	76.	Polni	1.28	.76	19.3	<u>-</u>	29.	*. ?]-		65.	3.1	<u>.</u>
1.07	66.	.9.	1.08	1.14	89.	1.13	1.03	1.05	.92	82.	%.	76.	86.
	66.	96.	1.06	*	*9.			.97	1.09	97•	98.	76.	
1.02	1.00	1.02	1.07	'n.	96.	1.01	96.	ŧ.	<i>6</i> .	•36	3 .	86.	76.
NUMBERS	NUMBERS IN TABLE ARE		E COEFFICIE	PRESSURE COEFFICIENTS Cp . Tr.	न		NUMBERS	IN TABLE AF	RE PRESSURI	ARE PRESSURE COEFFICIENTS GP		20	
NUMBERS UPPER =	NUMBERS IN BOXES 14D UPPER = VERTICAL DISI LOWER = HORIZONTAL DI TO BIGHT HORIZON AL	DICATE FLOSPLACEMENT	DW DIRECTION TO POSITIVE	ICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH ISPLACEMENT, POSITIVE FOR FLOW FROM LEFT RAME	SH FROM LET	A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS	NUMBERS UPPER = LOWER = TO RIGHT	UMPERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UMPER = VERTICAL DISPLACEMENT, POSITIVE FOR LUMASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT BANKT ORIGINAL LOOKING AFT.	VOICATE FL ISPLACEMEN DISPLACEM	OW DIRECTI T. POSITIVENT, POSIT	ON IN DEG	REES. ASH LOW FROM L	EFT PLANE
NOTE- T	NOTE- TABLE IS SEEN	I FROM THE FLOW	FLOW	,		BOUTH BE	NOTE- TA	TABLE IS SEEN FROM THE TON	FROM THE	PLON.			MOUNT

\$ \$ \$ \$	00 % % % %		6 ALPHA=-8.0 q= 31.0 PSF.	B.U DEG P	DEG PSI=0 DEG			RUN 11	T POINT A	7 ALPHA=-4.0		DEG PSI=0 DE	DE G FHC	
	* * * *	.6.	66.	76.	36.	96.	76.	76.	1.00	1.00	1.00	96.		16.
	* 8 8	96.	85.	*.	*. 			8.	6.	1.00	8 .	ę.		
	\$ \$	86.	85.	8.	-6.2	96.	.97	10.1	1.01	76.	6.	96.		.97
	66.	.97	87.	<u>'</u>	* :}			6.	6.	65.	.95 	·6.		
		6.	66.	8.	76.	.97	6.	8.	1.02	65.	₹.	96.		44
	.6.	96.	96.	16.	86.			86.	1.01	66.	66.	76.		
	*	1.00	96.	%.	10.1	76.	.83	%.	1.02	1.00	76.	56.		96.
-[1.00	1.00	86.	\$.	56.			1.01	1.08	1.28	*.	. 76.	4	
86.	.95 -10.3	9.	96.	1.02	96.	96.	86.	. 79.	-7.3	1.00	90.1	1.00		96
		1.07	69.	·.	:	- :}			٠ ٤ ٢	.83	. se.		:	
.97 1.	1.09	86.	66.	65.	%.	86.	.97	16:	ŧ0.	77.	11.	1.04		66.
	.79	.71	68.	'n.	66.			2.	٠73	76.	1.07	2.		
. 86.	.67	•5•	.79	.51	96.	16.	1.05	98.	٠,	£o.	*5.	%		96.
1.09		.50	RAKE	7.	.82		ئا	•• ••	٠٠. إ	RAKE	8.	55.	-[-	
1.05	3.0	دد.	⊕ o Iv	* *	66.	66.	1.12	8. 8	2.2 .61	ΦĘ	9. 2.	.3	; i.	.98
1.03	1.02	.9.	05.	.93	.92	٤.	1.00	1.05	16.	£4.	50.	1.04		.97
•	.0.	14.	65.	1.06	66.			.97	99.	56.	.70	89.		
. 10.1	•	ş	98.	8.	1.03	6.	6.	6.	1.01	10.	96.	1.02		.95
NUMBERS IN TABLE ARE		VESSURE	PRESSURE COEFFICIENTS GP		٢,٠		NUMBERS	IN TABLE	RE PRESSURI	ARE PRESSURE COEFFICIENTS C.	ENTS Co. PT	~].	-	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOBER = HORIZONIAL DISPLACEMENT, POSITIVE FOR PROMILEFE	CAL DISPLATOR	TE FLOI	W DIRECTION POSITI	N IN DEGRE	SH SH PROM LFE		NUMBERS UPPER =	UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = WORIZONTAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE OF FLOW FROM	NOICATE FL	THE POSITIVENT, POSIT	POSITIVE FOR UPWASH	SEES.	LEFT PAME	4
NOTE- TABLE IS SEEN	S SEEN FRO	FROM THE !!	POR			PAKE	NOTE- TA	NOTE - TABLE IS SEEN FROM THE PLON	N FROM THE	PLOR			B COL	a E



	RUN 11 POINT V= 100. KNOTS	2 6	ALPHA= 4.0	_	DEG PSI=-4.0 DE	DE G FHC		RUN 11 V= 100.	POINT 11 KNOTS q	ALPHA=-4.0 = 31.0 PSF.	•	DEG PSI=-4.0 DEG	
		1 (6.	1.00	1,00	16.	16.	66.	96.	.97	1.00	76.	76.	76.
-		6.	64.	*.	16.			86.	6.	84.	٠٠.	*. 	
	_	10.	10.	.97	66.	86.	1.00	.97	96.	87.	86.	96.	96.
		1.03	1.03	66.	٠ •			86.	.97	76.	.97	٠ •	
96.		.81	1.02	%.	66.	76.	1.01	86.	66.	87.	86.	86.	. 47
.76		06.	*	1.00	66.			1.00	.97	76.	86.	76.	
1.01		.8.	1.05	76.	16.	1.00	ř.	.93	6.	76.	.97	76.	.97
• <u>•</u>	-[.6.	08.	s.	1,01		[1.00		66.		66.	
1.00	-2.6	.57	90.	1.04	86.	4.2	8.	1.01	1.00	56.		16.	86.
· ·	3.6-	.8.	91.1	1.01	96.	-3.5	•	1.8	٠ <u>٠</u>	*	₹.	36.	∵.
.96		.51	.58	%.	1,02	66.	66.	8.	٠٢.	87.	.93	86.	96.
54.		*6.	.47	35.	86.			.75	.6.	64.	96.	56.	
1.16		.84	*	.62	1.04	1.01	.51	1.04	ē.	***	99.	96.	95.
1.18	-[14.	RAKE		8.	_[98.	ē. —[•	RAKE	66.	1.01	
	: ;		N N	3.6	%	76. 5.2-	6		• •	ΦŽ	ž. 8	79.	86.
	}		69.		ן \$. \$. ב	• }	1.01	: s:	ž ÷.	.33	8. 8.		*. L
.63		*6.	55.	86.	96.			.79	.7.	1.10	*6.	.96	
1.00		1.04	.78	.97	86.	\$6.	1.02	5 .	.67	57.	1.00	76.	6.
NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS CP :	EFFICIEN	TS Co . P.	2 - P		NUMBERS	NUMBERS IN TABLE A	ARE PRESSURE	COEFFICIENTS	3	Pres	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FUR UPWASH TO RIGHT LOKHING AFT.	ES INDICAT AL DISPLACI NTAL DISPL NG AFT.	E FLOW DI EMENT, PC ACEMENT,	DSITIVE POSITIVE	FUR UPWAS	ES. H FROM LEI	SURVEY F.T. PLANE	NUMBERS UPPER = LOWER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONIAL DI TO RIGHT LOOKING AFT.	MDICATE FLC	OW DIRECTION TO POSITIVE ENT. POSIT	ON IN DEGR	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH TOWNER = HORIZORTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PLANE TO RIGHT LOOKING AFT.	T PLANE
NOTE- TABLE IS SEEN	SEEN FROM	FROM THE FLOW	1	,		MOUNTHE	NOTE- T	TABLE IS SEEN	TABLE IS SEEN FROM THE FLOW	FLORE	1		MOUNTHE

	RUN 11 V=100	POINT	12 ALPHA=-4.0 q= 31.0 PSF.		DEG PSI= 4.0 DEG CONFIGURATION FHC	,, 0		RUN 11 V= 100.	POINT KNOTS	13 ALPHA= 4.0 G	4.0 DEG	DEG PSI= 4.0 D	DEG
8.	76.	6.	66.	1,03	86.	96.	1.00	66.	1.00	1.00	1.00	1.01	66.
	86.	6.	1.00	8 .	1.00			6.	1.00	97.	8 .	10.1	
.95	66.	.6.	1.02	6.	1.00	86.	6.	1.00	.97	10.1	56.	96.	1.02
	6.	1.02	66.	1.00	2.8			6.	86.	76.	76.	07.1	
86.	6.	.6.	10.1	76.	1.00	86.	66.	86.	86.	06.	1.05	6.	96.
	66.	1.01	10.1	1.00	86.			1.01	.91	08.	88.	86.	
.35	96.	1.02	86.	.97	-95	1.00	.37	.92	.78	57.	95	98.	66.
	1.00	*6.	97.	8.	96.			٠.	1.03	50.	8. L		-[
66.	1.01	.6.	1.01	.95	*6.	-5.2	10.1	1.02	.6. .9.	.62	.53	66.	2.3
	*. *.	3.0	60.	1.09	1.8	2.7		*	٠٤.	9.	36.	76.	٠ <u>.</u>
86.	16.	6.9.	65.	.79	.87	10.1	1.00	86.	76.	30.	7.	.88	1.02
	1.00	.29	. 446	16.	14.			1.02	.67	•56	54.	66.	
.97	.72	۰6.	•\$.	.78	94.	%.	66.	6.	۰6.	\$6.	1.05	1.02	1.01
	1.10	₹. .s.	RAKE	2.	95.			٠. الم	•. —[:	RAKE	9.	°. —[.	- [
1.03	. 76.	96.	ξ. Φ.	٠.	.,	.97	1.03	.98		0	1.07	1.12	1.04
_	·6.	2.0	z ioi	-9.	3.5 10.1	2.3		* •	٠ <u>٠</u>	2	.63	\$. :]	?:}
1.03	86.	1.11	50.	1.00	"	1.04	1.03	1.02	€.	68.	1.08	.58	1.01
	86.	.8.	27.	.76	*8.			1.00	1.03	99.	.27	.85	
1.00	96.	1.00	.87	.76	87.	26.	1.01	1.00	1.01	S.	09.	۶.	76.
UMBERS	NUMBERS IN TABLE ARE	1	PRESSURE COEFFICIENTS Cp .	ENTS C	STA'		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS Cp .	E COEFFICI	ENTS Cp .	210	
PPER :	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = HORIZONTAL DIS TO RIGHT LOUKING AFT.	ADICATE FLO	OW DIRECTION POSITIVE	INE FOR PLA	ICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH ISPLACEMENT, POSITIVE FOR FLOW FROW LEFT PAMPE	T SERVEY	UPPER = LOWER = TO RIGHT	WUMBERS IN BOXES IND JPPER = VERTICAL DIS LOWER = HORIZONTAL D TO RIGHT LOOKING AFT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZOWIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	OW DIRECTION TO POSITY	ON IN DEGI	REES. ASH LOW FROM L	LEFT BURVEY
OTE- 1	NOTE- TABLE IS SEEN	FROM THE	FLOW	1		PAKE MOUNTHS	NOTE- TA	IBLE IS SEE	TABLE IS SEEN FROM THE		Į.		RAKE

46	2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	200 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1	86. 76. 86. 4°. 76. 88. 68. 68. 68. 68. 68. 68. 68. 68. 6	00 10 10 10 10 10 10 10 10 10 10 10 10 1			86. 69. 1. 1. 69. 69. 69. 69. 69. 69. 69. 69. 69. 69		1.0.1 1.0.1 1.0.1 1.0.1 1.0.1 1.0.1 1.0.1 1.0.1 1.0.1	
8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		F. F. F. F. F. S.			3 3 6 6 3 3 3 3 3 5 3 6 3 5	N 9 - 9 -		6. 8. 8. 8. 8. 8. 8. 11. 6. 8	.99 .98 .96 .96 .96 .99 .99 .99 .99 .99 .99 .99	1.00
89. 99. 99. 99. 70. 40. 40.		* • • • • • • • • • • • • • • • • • • •			2.6.6.0.0.1.1.4.6.1.5	N q q		* 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.9698	1.00
99. 100.1 89. 72. 42. 90.1		6. 6. 6. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.			8 6 9 9 9 9 9 9 9	9 9		2 0 0 0 0 0 0 0 0 0 0 0	.96 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00 .97 .98 .99 .97 .99 .99 .97 .91 .90 .90 .90 .90 .90 .90 .90
0.1 69. 7 42. 40.1		%			60.1			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	.96 1.00 1.00 1.00 .97 .97 1.00 .95 .95 .98 1.01 .98 .98 1.01 .98 .98 1.01 .98 .98 1.01 .98 .98 1.01	.99
89. 72. 80.1 90.1		• • • • • • • • • • • • • • • • • • •			0 0 0 1 1 6 1 5			9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9	.97 .97 1.02 .95 .96 1.00 .97 1.01 .97 .97 1.01 .98 .98 .98 .98 1.01 .98 .98 1.01 .98 .98 1.01	.99 .97 .97 1,02 .98 1,00 .99 .99 1,00 .99 .99 .99 .99 .99 .99 .99 .99 .99 .
86. 1. 2. 4. 2. 4. 2		6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6			3 3 3 5 3 3		٩	00 10 10 10 10 10 10 10 10 10 10 10 10 1	90. 10.00 10.00 90. 10.01 10.00 90. 90. 90. 90. 90. 90. 90. 90.	6- 10.1
2. 3. 3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.		8. 0. 3. 5. 0.			3 3 3 6 3 3		4		9. 9. 10.1 9. 96 . 96 . 96 . 96 . 36 . 96 . 38 . 96 . 38 . 96 . 38 . 96 . 38 . 38 . 38 . 38 . 38 . 38 . 38 . 3	10.1 7 79. 10.1 36. 38. 38. 38. 38. 38. 38. 38. 38. 38. 38
1.03 42.04 90.1		0 0 2.0.1			3 3 8 3 3		٩	2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	9. 96 . 96 . 96 . 96 . 96 . 96 . 96 . 9	6- 10.1 7 7 1.01 3.6 8 8 8 9 9 9 9 9 9 9
4 6		1.05			6. 19. 3	3	1.01	10.00		.63 -99. 1.01
65.	.2.	1.05	69.	1.01	1.01		1.07	-	8.	96. 34.
		•			c".					
.72	.7 _b	19:						?.	.6540.	.25.
24.	9.	69.	1.04	1.01	76.		1,10	1.10	_	10.
RAKE	ê.	7	1	F	1.u2	-	•:	:. :	.89 RAKE 1.00	.33 .89 RAKE 1.00
	. 28	16:	.91 -1.6.	1.03	1.05	2 4	.96	8.	Poly od	.57 .00 Od5.3
	8.	1.07	<u></u>		·%.		*0:1	*0.1	11.16	1.0.1
98.	.5°	8.	6.	1.01	1.01		1,05		1.05	.87 1.05
.92	.7.	*.			10.1		1.00		1.00	1.03 1.00
95.	٠٢.	. 62	96.	1.00	1.05		1.03		1.03	1.04 1.03
COEFFICIE	PRESSURE		NUMBERS IN		_	1	MS 6 - P	COEFFICIENTS G. PEP	E PRESSURE COEFFICIENTS G. PEP	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. PTP
POSITIVE Tr. POSITI	PLACEMENT ISPLACEMENT	RTICAL DIS	UPPER = VELOWER = HG	PLANE	ROM LEF	SEE	N IN DEGREES. FOR UPWASH	M DIRECTION IN DEGREES, POSITIVE FOR LOW FOR FLOW FOR	DICATE FLOW DIRECTION IN DEGREES, SPLACEMENT, POSITIVE FOR LUWASH DISPLACEMENT, POSITIVE FOR FLOW F	IN BOXES INDICATE FLOW DIRECTION IN DEGREES. FERICAL DISPLACEMENT, POSITIVE FOR LUBASH ORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FOLOW FOL
TO	ROM THE	E 15 SEEN	NOTE- TABL	PAME MOUNTING					FROM THE ROW	FROM THE ROW
2	RAKE MOUNTING POINT .86 .92 .96 .96 .96 .96 .97 .96 .97 .96 .97	.5042 .50442 .50442 .5028 .90 .73 .92 .73 .96 .73 .96 .73 .96 .73 .96 .73 .96 .73 .96 .73 .96 .73 .96	.61 .75 .72 1.00 .69 .50 .42 .91 .41 .2.0 .28 .99 .44 .83 .55 .93 .92 1.00 .82 .73 .92 1.00 .82 .73 .92 1.00 .82 .101CATE FLOW DIRECTION IN DEGREES RICHARD DISPLACEMENT, POSITIVE FOR PLOW COKING AFT.	.41 .31.07 .83 .82 .82 .82 .82 .84 .84 .84 .85 .86 .86 .86 .86 .86 .86	NUMBER TO RIGHT HOOFE HOOFE	NUMBER TO RIGHT HOOFE HOOFE	1.04 1.09 1.09 1.09 1.09 1.09 1.09 1.09 1.09	NUMBER TO RIGHT HOOFE HOOFE	. b	1.05 . 25 . 93 1.02 1.04 1.04 1.05 1.01 1.04 1.05 1.05 1.01 1.04 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05

	RUN 11 V= 100.	POINT	16 ALPHA= .0		DEG PSI= 4.0 DEG	-0		RUN 11 V= 100.	FOINT 17	ALPHA=		DEG PSI= 8.0 DEG	, <u>.</u> 2
66.	66.	.6.	84.	86.	76.	76.	66.	86.	.6.	1.02	66.	16.	.97
	6.	1.02	1.00	8.	.6.			66.	6.	67.	ş.	۴٠.	
66.	6.	6.6.	1.02	96.	76.	96.	1.00	66.	86.	74.	66.	86.	ş.
	8.	96.	84.	1.01	°.			6.	.98	66.	66.	*. :	
66.	96.	.6.	1.02	86.	96.	76.	6.	6.	66.	1.02	86.	66.	96.
	96.	86.	\$7.	.92	1.00			1.00	.6.	66.	*	86.	
.35	.93	16.	.85	%.	\$6.	76.	•5•	10.1	86.	85.	.82	*9.	66.
	86.	1.00	٠. در.	6.	*			*. —[:	1."	70.	£.	%. 	_[.
66.	%	3 34.	1.02	09.		96.	86.	1.1	10.1	9.	**.		76.
	3.5	1.6	3.	3 56.	 .s.	3.0		1.6	20.1	1.12	·		-
.97	.97	.6.	.23		24.	76.	6.	10.1	6.6.	94.	18.	0.0	.73
	1.00	٠٢.	.37	.29				86.	.9.	.72	.87	.51	
96.	1.10	.7.	67.	¥.	59.	.93	1.02	1.04	1.00	.24	79.	.13	70.
	1.02	.71	RAKE	.62	°.			*:		RAKE	٠.	11.1	4
1.03	1.06	1.11	HOUNTING	1.04	8.	.5	1.03	1.00	26.	S C C C C C C C C C C C C C C C C C C C	.78	.92	.97
	_	96.	POŢNT	.57	;; ;;	0:		1.03	3.5	NIO4	1.09	\$. \$.	?:}
1.04	%.	1.00	*.	.23	9.	10.1	1.04	1.06	.93	1.03	37.	69.	1.00
	86.	1.00	50.	.38	۲.			1.01	1.02	9.	•5•	ð.	
1.01	86.	. 6.	88.	.70	04.	76.	1.02	1.00	1.08	1.08	• 20	99.	8.
UMBERS	NUMBERS IN TABLE ARE	RE PRESSURE	COEFFICIE	COEFFICIENTS C. P.D.	5		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS C.	E COEFFICI	ENTS G. P.	श	
UMBERS PPER =	NUMBERS IN BOXES IND UPPER = VERTICAL DISF LOWER = HORIZONTAL DI	INDICATE FLO	F. POSITIVE	ON IN DEGR	TICATE FLOW DIRECTION IN DEGREES. LACEMENT, POSITIVE FOR UPWISH SPLACEMENT, POSITIVE FOR FLOW FROW LEFT FAMME	T. SANE	NUMBERS UPPER =	VERTICAL HORIZONTAL	S IN BOXES INDICATE FLOW DIRECTION IN DEGRES. = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM	OW DIRECTI T. POSITIVE ENT. POSIT	ON IN DEGI	REES. ASH -OW FROM LE	LEFT: SURVEY
O KIGH	TO HIGHT LOOKING AFT NOTE- TABLE IS SEEN		FLOW		7475W	BAKE	NOTE- T	VOTE- TABLE IS SEEN F	TABLE IS SEEN FROM THE FLOWS	FLOM	-	747511	PAKE MOUNTHE
DUEL N	MODEL NOSE, LOOKING				-	FORT	MODEL N	HOSE, LOOKI	NG AFT.	_			1

	RUN 12 V= 150.	POINT	S ALPHAE .	9	DEG PSI=0 DEG	9 2	_	RUN 12 V= 150.	POINT 6 KNOTS 9=		ALPHA=-4.0 DEG PSI= 69.3 PSF. CONFIGURAT	DEG PSI=0 DEG	ຸ ບ
6	8	8	9	8	16	9.	76.	76.	86.	16.	96.	96.	86.
		. 66	96.	1,00				86.	.6.	96.	*.	% .	
6.	6.	.6.	86.			76.	76.	86.	16.	66.	76.	86.	96.
	1.00	.97	1.01	7	4			.97	96.	86.	36.	* :]_	
1.00	6.	86.	65.	96.	96.	96.	6.	66.	96.	St.	.97	96.	66.
	%	89.	9.	.97	96.			.97	ę.	87.	96.	96.	
.39	68.	.82	58.	88	1.00	76.	.37	5 .	÷.	35.	76.	1.00	86.
		۲.	٠,٠	. 6.	76.			86.	۲.	9.	1.02	%. -{-{-}-	4 4
1.00	. s.	-	1111	_		.97	86.	.95	-7.6	3.	1.08	96.	66.
-					-2.2	٠.		<u>.</u>	*. 	66.	1.06		7
9.1]	}	64.		. %. 	·.	%.	6.	24.5	1.08	08.	1,01	86.
	.87	. 47	35.	15.	1.01			69.	•58	.85	.42	67.	
1.03		.7.	27.	.78	88.	۶.	%.	.52	,5¢	69.	29.	98.	66.
	00.1		RAKE	1.26	16			.43	*·	RAKE	.87	16.	- [:
	5	CJ	MOUNTING	6	-2.3		6.	69.	-5.8	MOUNT ING	.92	96.	96.
	_	3.7	Polivi	69	-2.9	6.		-2.7	*.	POINT	1.02	٠. د.	:]-
1.01	1.0	: ē	14.	. 2.	3.1	*.	1.00	.97		3	%.	96.	96.
	8.	9.	64.	56.	96.			.91	*8*	.35	1.09	66.	
86.	8.	.92	55.	\$6.	76.	%.	6.	6.	٠,٠	. 42	1.03	1.00	.97
HUMBERS	NUMBERS IN TABLE ARE	RE PRESSURE	RE COEFFICIENTS G.	ENTS G.	ħ.		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp . PLPS	RE PRESSURE	E COEFFICE	LENTS Cp .	27-	
JPPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. LOWER = WERTICAL DISPLACEMENT POSITIVE FOR UPASSH LOWER = HAIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT BANKY	ISPLACEMEN DISPLACEMEN	UN DIRECTION OF POSITION	E FOR UPWI	EEES. ISH OW FROM LE	FT SURVEY	NUMBERS I UPPER = V LOWER = 1	JUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. JOPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH COBER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT, SANKEY CO RIGHT LOOKING SAT.	NDICATE FLO ISPLACEMEN DISPLACEMEN	OW DIRECT!	ION IN DEGI	REES. ASH LOW FROM L	EFT, SURVE
VOTE- T	NOTE - TABLE IS SEEN	H FROM THE	E FLOW	1	#10.7 * /	RAKE	NOTE- T	TABLE IS SEEN FROM THE FLOW NOSE, LOOKING AFT.	N FROM THE	FLOW	Į.		MOUNTHG FOINT

	RUN 12 V= 150.	POINT KNOTS	7 ALPHA=-2.9		DEG PSI=0 DEG	ى ي		RUN 12 V= 150	POINT KNOTS	8 ALPHA= 2.0 q= 69.3 PSF.	2.0 DEG P	DEG PSI=0 DEG	<u>ه</u> ي
1.00	66.	.6.	84.	66.	76.	16.	1.00	6.	1.00	10.1	66.	76.	66.
	86.	96.	64.	*.	% .			6.	1.00	1.00	*.	76.	
86.	96.	66.	87.	76.		76.	6.	.97	1.00	87.	96.	76.	66.
	1.01	1.01	1.00	*.	ن بو:			66.	1.00	1.01	6. 6.	٠ ٤.	
66.	1.01	.6•	76.	86.	96.	%.	10.1	1.00	.74	54.	.95	76.	76.
	1.01	1.00	87.	1,00	76.			6.	*6.	16.	1.03	76.	
64.	\$6.	1.0.1	76.	.67	76.	86.	.51		٠,	3.	.73	76.	. 97
Ĺ	96.		£4.	1.00	. 76.	— —:		5.	 	.85		% .	-[
1.00	.97	 	1.03	66.	66.	66.	1.00	.36	-3.6	99.	88.	99.	96.
	· · ·	-1:5 .8.	.71	.e.	26.5 26.	- :}			-1.6 85.	54.	.57	.85	٠.
1.00	*.	.80	56.	.73	*c.	.97	1.03	1.02	94.	57.	• 65	.75	76.
	16.	. t.	3	.31	89.				.29	•\$.	۲.	.53	
1.00	99.	*6.	9.	.93	5 3.	76.	1.04	.87	. 47	.30	*.	1.06	86.
Ľ	1.04	%. —[:	RAKE	.43	98.			1.05	; —[RAKE	%.	*. 	-[
1.02	.92	٠٢٠	₩ •	99.	\$6.	.93	1.02	1.03	*4.	HOUNT ING	8.	66.	2.3
<u>i</u>	66.	٠ ئ.		*.		·]-	<u>ں</u>	20.1	#. ?]	N Iod	2.	10.1	:]
1.01	.92	19.	64.	76.	1.07	66.	1.02	1.00	1.00	65.	1.04	56.	76.
	1.03	.97	. 37	66.	66.			1.00	6.	62.	.82	96.	
66.	96.	1.0th	64.	1.03	1.00	.97	1.00	1.00	96.	54.	۰7.	1.01	. 45
UMBERS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS G.	ENTS G. P	4]_		NUMBERS	NUMBERS IN TABLE A	ARE PRESSURE COEFFICIENTS CP .	E COEFFICIE	ENTS CP . 1	2.4	
JPPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR PLOW ASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FOR TO RIGHT LOOKING AFT.	HOICATE FLO ISPLACEMEN' DISPLACEME	DW DIRECTI T. POSITIV ENT, POSIT	ON IN DEGR	SH OW FROM LE	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT		IN BOXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FOR PLOW FROM HORIZONIA DISPLACEMENT, POSITIVE FOR FLOW LOOKING AFT.	OW DIRECTION T. POSITIVE ENT. POSITI	ON IN DEGR	SH FROM LE	LEFT SURVEY
10TE- T	NOTE- TABLE IS SEEN	FROM THE	FLOW		,	MOUNTING	NOTE- T	TABLE IS SEE	FROM THE	2			PAKE

	RUN 12 V= 150.	POINT	= 69.3 P	0	DEG PSI=0 DEG			RUN 12 V= 150	POINT 1	ALPHA=	2	DEG PSI=-2.0 DEG	ى _ت
.78	66.	1.00	97.	1.01	96.	16.	.79	1.00	86.	84.	%.	56.	76.
	86.	1.00	66.	%.	e.			.97	9	1.00	٠.	۶.	
66.	1.01	1.02	16.	66.		96.	1.00	96.	.97	5.	. 76.	96.	.97
	6.		69.	. 76.	-1.5 .96.			%.	96.	66.	ن •	<u>.</u>	
1.01	.89	0.80	88.	.92	96.	96.	1.00	8.	۶.	26.	ŧ.	76.	.97
	1.03	.77	36.	.97	1.02			.82	.97	28.	1.01	.97	
.55	16.	.8.	.83	٠٢.	.97	96.	.53	09•		10.	.87	*6·	96.
	**.	·.	80.	8.	.93			_ું. ક	-[:	16.	1.05	6. L	<u>_</u> [
1,01	3.9	.6	.73	. 6.	86.	3.9	66.	*	95.	54.	. 6.	*9 •	86.
_	7	9	1.03	.93	-1.3	- 7	<u>ن</u>	.92	·.	95.	.s.		7.
8.	20.1	-	7.	.47	.,	1.00	1.05	*5.	٠٢.	18.	.67	1.00	1.01
	68.	٠٢.	94.	1.14	-,92			%	₩.	.21	٤٢.	1.03	
66.	1.03	7.	18.	.97	96.	1.00	۶.	54.	₹.	07.	.95	86.	96.
		*6.	RAKE	.82	76.	_		%.	-[RAKE	26.	1.13	4
1.02	6.	9 1	HOUNTING	.87	3.1	4.2	1.02	1.13	7.1	Po Piri	1.02	3.4 1.04	1.01
Ľ	.93	• L		96.	1.02		<u>ل</u>	, ; ,	, , , , , , , , , , , , , , , , , , ,		96.	86.	7
1.01	1.00	39.	.47	ě.	96.	1.00	1.02	56.	9	1.08	1.02	66.	66.
	1.01	26.	92.	ة.	8.			.9	.67	56.	1.03	66.	
1.01	1.03	٠.	٠.,	1.03	.97	\$6.	1.00	į	٠٢.	.35	ŧ.	%.	š.
JMBERS	NUMBERS IN TABLE AR	J	PRESSURE COEFFICIENTS C. PLS	ENTSC	7		NUMBERS	IN TABLE A	ARE PRESSURE COEFFICIENTS	COEFFICE	ENTS Cp . Pr-Ps	S.	
JMBERS PPER = DWER =	NUMBERS IN BOXES INDICATE FLOW UPPER = VERTICAL DISPLACEMENT, LOWER = HORIZONTAL DISPLACEMENT OF RAT LOOKING AFT.	VDICATE FLISPLACEMENDISPLACEMEN	OW DIRECTI IT. POSITIV IENT. POSIT	DIRECTION IN DEGREES. POSITIVE FOR UPWASH TO POSITIVE FOR FLOW	DICATE FLOW DIRECTION IN DEGREES. SPLACEMENT, POSITIVE FOR UPWASH T. SPLACEMENT, POSITIVE FOR PLOW FROW LEFT PANKE	T SURVEY	UPPER = LOWER = TO RIGHT	IN BOXES I VERTICAL D HORIZONTAL LOOKING A	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWISH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	W DIRECTI POSITIV NT. POSIT	ON IN DEGR	EES. SH FROM LEFT	FT SURVEY
OTE- TA	NOTE- TABLE IS SEEN	V FROM THE FLOW	FLOW	Į,	,	PAKE	NOTE- TA	BLE IS SEE	TABLE IS SEEN FROM THE FLOW NOSE, LOOKING AFT.	TON	į,		MOUNTING

	RUN 12 V= 150.	POINT 1	1 ALPHA= 2.0	CONFIG	DEG PSI=-2.0 DEG	ى ي		RUN 12 V= 150.	POINT 12 KNOTS 9=	ALPHA=-2.0 = 69.3 PSF.	•	DEG PSI=-2.0 DEG CONFIGURATION FHC	
7.	76.	96.	1.00	86.	96,	86.	.62	6.	96.	76.	8.	76.	.97
	.97	ę.	1.00	\$.	*. [8.	۶.	96.	6.	%·	
.97	.97	6.6.	1.00	96.	96.	76.	96.	96.	1.02	1.00	56.	3.95	86.
	8.	86.	76.	86.	76. 6.			8.	96.	96.	٠. ا	٠ •	•
.97	.87	86.	. sa.	.97	66.	%.	96.	1.00	.97	65.	6.	.97	.97
	1.08	1.00	04.	96.	.97			96.	1.01	1.00	₹.	.97	
.55	%	6 .	99.	.	\$6.	%.	• 55	%	6.	٠,	1.00	96.	.97
//	.54	.87	65.	°.	8.		[8	*.	1.04	% .	1.09	
2 6.	19.	*6°	1.07	64.	86.	66.	8.	86.	16.	16.	6.	76.	76.
?	-2.7	16.	54.	1.00			·		1.00	04.	å .	86.	-
.97	۶۲.	₩.	**	.31	68.	66.	10.1	• 58	.62	•56	.76	86.	.97
	64.	19.	80.	۲.	*			19.	٠.	12.	89.	16.	
96	۴.	19.	85.	1.08	*.	8.	.97	• 58	•52	57.	.0 5	96.	6.
		3.	RAKE	**	3. 	_		.93	₹.	RAKE	₹.	*	_[
1.01	1.08		ON TINE	26.	- 4	66.	. 3	-2.6 -96 -10.1	0.1		.80	16. 1.5-	96.
	86.	15.		1.06	3.1	— ;	<u>.</u>	.82	¥ 		11.11	%. -	7
1.01	35.	.87	60.	10.1	96.	86.	1.01	8.	.72	65.	8.	1.00	96.
	1.04	.82	18.	ŧ.	.97			.93	.82	*	1.00	.97	
1.00	1.01	٠76	.51	26.	26.	66.	1.01	60.	, S4	10.	10.1	101	\$.
MBERS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS CP .	ENTS Co.	1 -		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS GP . T	RE PRESSURE	E COEFFICI	ENTS CP .	1	
MBERS PER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VENTICAL DISPLACEMENT, POSITIVE FOR UPASH LOVER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SAME OFFICER OFFICERS OF THE FOREMENT OF T	NDICATE FLISPLACEMEN DISPLACEMEN	OW DIRECTI T. POSITIVENT, POSIT	ON IN DEG	ASH LOW FROM LI	EFT SANEY	NUMBERS UPPER = LOWER = TO RIGHT	UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOUKING AFT.	ADICATE FLI ISPLACEMENI DISPLACEM	OW DIRECTI T. POSITIVE ENT. POSIT	ON IN DEG	IS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. = VERTICAL DISPLACEMENT, POSITIVE FOR PLOW FROM LEFT SANCE = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SANCE THAT LOOKING AFT.	T SURVEY
TE- TA	NOTE TABLE IS SEEN	N EROM THE	THE FLOW			PAKE MOUNTHS	NOTE- TA	TABLE IS SEEP	IS SEEN FROM THE FLOW	FLOW			PAKE

2 1	RUN 12 V= 150	POINT 1	3 ALPHA= 2.0 q= 69.3 PSF.	O DEG	DEG PSI= 2.0 DEG	93		RUN 12 V= 150	POINT	14 ALPHA=	CONF	DEG PSI=-4.0 DEG	DE'G
8.		6.	16.	86.	36.	95.	.79	8.	6.	86.	16.	%.	86.
9	1.02	96.	76.	8.	*. —[8.	%.	8.	6.	*. —	
	.8	.96	*.	8.	76.	16.	8.	8.	%	8.	86.	76.	
	1.00	96.	*	š.	2· 2·			8.	%.	76.	. 76.	۶. ا	
-	.97	1.04	.89	86.	1.00	86.	8.	16.	%.	65.	8.	6.	76.
	%	.80	68.	\$	*			8.	٠.	16.	8.	76.	
		ě.	66.	.76	1.02	96.	ş.	٤.	.92	8.	6.	6.	96.
•	.s.	٠٠. ا	6,	.51	, , ,	— —:		.57		.85	8.	, e. —	<u>-</u> F
		. 0	1.04	5.		%. • • •	1.03	8.	. 4. f.	*			. 4.6-
	8: :	7	9, 1	٤. :	_	_; }-	_	٠. ا		06.	8.		* }
		3	: 19		91.1	:			e .	3.	3	. 6.	
•	.57	9.	3.	٠,	1.05	%.	1.03	.8	35.	7	.51	8.	86.
	1.13	٠.	RAKE	4.	*: 	<u></u>		٠. ا	·.	RAKE	<i>*</i> .	اً. ئ	
	1.00 1.1	.2 1.10	PO-NT ING	8, 2	2.8	%. 3.1.	1.03	6. 6. 6.	2.8	Point	8. 8	86. 8.	-2.0
	.6.	. é.	18.	. 8.	6.	ş.	•	1.0	: : -	8.	1.01	6.	*.
•	%	.97	7	.6.	%.			4.	2.	%.	1.02	.97	
•	%	٠6.	1.02	٤.	86.	\$6.	8.	۶۲.	ş	90.	%.	8.	\$6.
	NUMBERS IN TABLE ARE	E PRESSURE	PRESSURE COEFFICIENTS G. P	NTS G.	打-		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS GP . T	RE PRESSUR	E COEFFICE	ENTS GP	타	
OHNY	CAL DI	SPLACEMEN SPLACEMEN SISPLACEM	OW DIRECTIO T. POSITIVE ENT. POSITI	N IN DE	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPLASH TOWNSTRONT DISPLACEMENT, POSITIVE FOR FLOW FROW LEFT SAME TO RIGHT LOOKING AFT.	EFT SANE	UPPER =	UMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, OPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH ORER = MORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM OR REGAT LOCKING AFT.	NOICATE FL ISPLACEMEN DISPLACEM	OW DIRECT!	ION IN DE	FROM	LEFT SURVEY
-	NOTE- TABLE IS SEEN	FROM THE FLOW	FLOW	1		BAKE WOUNTHED	NOTE- T	TABLE IS SEEN FROM	9	THERION	1		MOUNTHE

	RUN 12 V= 150	POINT I	15 ALPHA= .	9	DEG PSI=-2.0 DEG CONFIGURATION FHC			RUN 12 V= 150.	POINT	16 ALPHA= .	0	DEG PSI= 2.0 DEG	٥٥
10.	86.	6.		8.	8.	16.	18.	66.	<i>ē</i> .	76.	8.	9.	1.00
	96.	1.01	1.00	86.	%. 			8.	<i>§</i> .	\$6.	6.	*. —[
1.00	66.	.6.	85.	76.	76.	16.	8.	1.01	.97	?.	8.	76.	16.
	6.	1.01	1.01		\$. ?]			86.	%.	87.	1.00	٠ ٠	
96.	.9	%	66.	.95	66.	8.	1.00	8.	٠.	1.01	86.	96.	96.
	.90	.8.	?	%.	66.			8.	<i>6</i> .	?	٠6.	96.	
• 56	.90	ē.	9.	%.	56.	16.	.53	*	1.03	1.01	%.	96.	16.
L		٠٠.	7.	6.	%.			*.	 -{	7.	82.	*.	4
1.00		68.	5.	27.	8.	86.	86.	1.01	? ?	s.	8.		3.I-
	.72	*	87.	.57	1.03				3.	68.	2.	*.	·].
86.	*	.58	•	74.	\$6.	76.	8.	2:	.87	9.	1.06	1.12	76.
	.83	٠٢.	. 75.	6.	86.			1.08	٠,	18.	65.	09.	
.95	.67	94.	8*.	.20	16.	8.	66.	1.08	4.	20.	٠.	ş.	8.
Ľ	1.06	٠٠٠ -[-	RAKE	88.	*.			.92	٠٠. اج	RAKE	.26	; ; [4
1.00	1.05		Φ ^o z	78.	99.	ş.	1.01		6.	O N	š.	63.	· ·
٦	\$. 	s. -		*8.	, , ,	_	_	*. 	<u>4</u> .		.82	*. - -	7-
1.01	.92	٠٠.	72.	%.	1.00	۲۰.	7.05	%.	<i>6</i> .	•	د .	86.	1.60
	1.03	٠٢.	*.	*.	96.			8.	6.	87.	36.	86.	
96.	1.03	٠٤.	**	76.	1.00	3.	1.01	6.	1.03	3.	75.	1.00	3.
HERS	NUMBERS IN TABLE ARE	ARE PRESSURE	COEFFICIE	COEFFICIENTS C. T.P.	5,0		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS CP .	COEFFICE	ENTS CP .	5	
BERS ER = ER = RIGHT	IN BOXES VERTICAL HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPMASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO HIGHT LOWRING AFT.	POSITIVE	N IN DEGR	=	T SURVEY	UPPER =	HUMBERS IN BOXES HIDD LOWER = WENTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	HUPER = VERTICAL DISPLACEMENT POSITIVE FOR LP ASH LOWER = WENTICAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOWING AFT.	ON DIRECTION POSITIVE	ON IN DEGR	EES. ISH ON FROM LE	LEFT SIRVEY
E- TA	NOTE - TABLE IS SEEN	FIL FROM THE FLOW	•			PAKE MOUNTHS	NOTE - TA	BLE IS SEE	NOTE - TABLE IS SEEN FROM THE FLOW	FLOW		. ,	RAKE

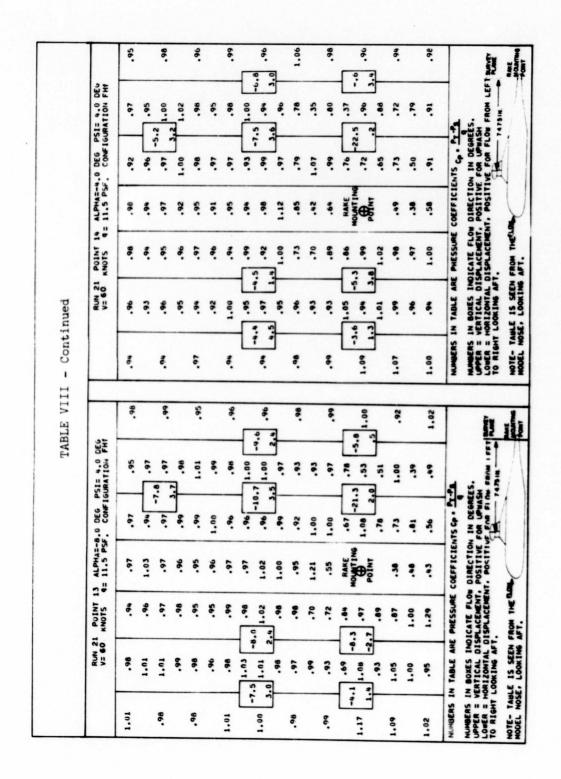
	RUN 1: V= 150		7 ALPHA= 4= 69.3 PSI		SI= 4.0 DEG	
.85	.99	1.00	1.01	.98	.96	.90
	.99	.98	1.03	1.00	.96	
1.01	.99	1.02	.49	.98	.99	.0
	1.00	.99	1.02	.97	.95	
.97	.97	1.02	1.04	1.00	.96	.97
	.99	1.00	.94	.99	.95	
.38	.97	1.07	.42	.95	1.00	.07
_	.98 _	.95	.54	.01	.87 _	L,
.97	.97	.90	.72	.88	.2 .81	.1
Ŀ	.95	.94	.81	1.01	.5 .81	••
.98	1.05	.92	.95	.74	.85	.90
	1.03	.70	.59	.69	.59	
.99	.98	.02	.78	.83	.53	.96
	L 1.01 _	1.09	RAKE	.96	77 _	L,
1.00	.3 .91	1.09	MOUNTING	.38	1.81	1.03
Ľ	1.02	1.11	POINT	1.10	1.06	."
1.01	1.00	.68	.83	.86	.90	.96
	1.00	.99	.43	.93	.85	
1.01	1.03	1.00	.74	.72	.92	.96
NUMBERS UPPER = LOWER =	IN TABLE AF IN BOXES IN VERTICAL DI HORIZONTAL LOOKING AF	DICATE FLESPLACEMENT	OW DIRECTIO	N IN DEGR	SH OW FROM LEF	T SURVEY
NOTE- TA	ABLE IS SEEN	FROM THE	304	. : -	7 4 75 IN.	RAKE M CUNT

	KUN 2	11	5 ALPHAE	.0 DEG PSI=0 DEG	SI=0 DE	9		IS NON.	PUINT		11 2	DEG PS1=0 DEG	
	V= 60	KNOTS	e= 11.5 PSF. (F. CONFIG	CONFIGURATION FHE			V= 60	KNOTS	q= 11.5 PSF		RATION FH	
1.00	ŧ.	1.00	76.	1.02	.60	1.00	96.	1.00	. 46.	8.	8.	8.	8.
	86.	66.	8.	66.	٠ •			%.	8.	.92	.%	\$.	
6.	66.	10.1	66.	96.	16.	6.	86.	8.	٠.	%.	8.	8.	86.
	1.00	1.00	1.01	*.	». —			8.	8.	-92	8.	20.1	
ŧ.	97.	1.02	1.01	16.	8.	6.	8.	8.	8.	86.		8.	
	96.	1.02	1.02	66.	86.			8.	.97	%.	٠.	96.	
.97		•	96.	6.	1.00	96.	8.	16.	.97	56.	.97	1.00	86.
L	*6.	٠. ده.	66.	8.	*:	- -	_	[]	*. 	8.	\$.	1.01	<u>ا</u>
66.	-95		10.1	9.	1.07	1.00	6.	1.03	6.	8.	26.	%.	8.
	ان ان ان	1.1	ŧ.	ę. []			ני	ا * آ	ر د د	ŧ		*. -	1
.97	.92	99.	16:	19:	*:	.8.	8.	.99	8.	16:	1.01	8.	1.00
	ss.	8.	16.	.57	4.			6.	1.01	1.10	1.07	1.0	
1.14	15.	. 62	*5.	S1.		96.	1.0	1.05	3.	1.10	1.05	4.	8.
_	₹. 	۲.	HAKE	.52	• • •	- -		5.		RAKE	24.	•	- F
1.08	. 4		Φ.	1.02	20.1	16.	9.1	75.	04.	•	.52	٤.	1.02
٥	1.0.1	s.		%. *	::	-	J —	; :-	26.		*	*. 	<u> </u>
1.01	1.02	.72	.52	.95	٠.	16:	1.06	š .	•	٤.	8.	1.07	ě.
	1.02	.05	*:	••	1.01			.52	s.	*	9.	8.	
٠,	1.04	8.	85.	69.	*	\$.	1.00	ĸ.	4	\$	15:	ŧ	š.
NUMBERS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS CP - PT-P	ENTS Cp . D	5		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS CP.	E COEFFICE	ENTS CP	4	
UPPER =	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = HORIZONTAL DIS	SPLACEMENT, DISPLACEMENT	CATE FLOW DIRECTION IN DEGREE LACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR FLOW	DIRECTION IN DEGREES POSITIVE FOR UPWASH T. POSITIVE FOR FLOW		(FFT 8000)	NUMBERS	THE BOXES	INDICATE FLOW DISPLACEMENT, AL DISPLACEMENT	OW DIRECTION T. POSITIVE ENT. POSITIVE	256		LEFT
NOTE - TA	TE IS CEEN	FROM THE FLOW	10	1		***		2 21 3 10	IS SEEN FROM THERS	200	Y		PAKE
MOUEL NO	MODEL NOSE LOOKING		_					MOSE. LONE BE		1			

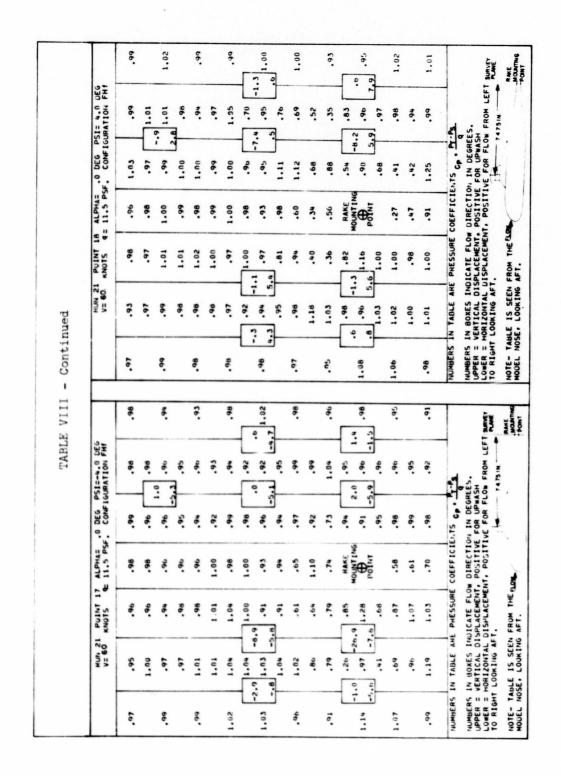
	RUN 21 V= 60.	POINT	7 ALPHA=-4.0 q= 11.5 PSF.		DEG PSI=0 DES CONFIGURATION FHE	PHI			RUN 2	21 PUINT	8 ALPHA= 4.0 4 = 11.5 PSF.		DEG PSI=0 DEG CONFIGURATION FHE	FH	
86.	ŧ.	1.00	66.	8.	*.	8.	_	.07	16.	1.03	1.02	1.05			06.
	56.	1.01	8.	_	<u>-</u>				96.	1.06	1.02	1.05	·.		
·••	ŧ.	8.	76.	. 8.	-3.6	*.		.03	8.	1.06	1.02	.87	06.		.92
	8.	1.01	.97		*. - -				1.00	1.05	.97	8.	•		
1.00	1.00	10.1	66.	.87	ě.	%.		*	1.01	1.05	1.01	8.			.92
ZZII	1.00	1.01	8.	.90	.90				1.00	1.02	1.02	6.	8.		
1.00	*	%.	1.00	.93	.92	*.	.97	1.00	.97	1.10	1.00	.62	•		.95
Ŀ	.93	00.1	1.06	8.	Ţ.	-[Ľ	•	71.02	se.	8.	•. - []	- 2.3	
10.1	.93	* .	1.01	8.	.6.9	ş. 		*.	_	_	.70	ē.			.92
	£ :	٠٠. ا	96.	66.	€. 	-			•	š :	ē :	? :	£ 4		5
ŧ.	6.	%	.82	.72	1.06	6.		:		3		2 4			
	۶.	1.02	3.	?	÷.	-			: :	: :		!	-		,
96.	.39	.67	1.00	.21			. 26.	6.	8.	8 .	ξ.	٤.	1.00		.87
-2.2	8. 4	-10.0	MOUNTING	15.	. s. s	-2.3		3 27	e. 8.	89.	MOUNTING	3. 6.	9. 1-6.	5.6	26.
6-4-		-2.3	POINT	91:1	: °:	2		\$ }	_	*: •:	POTNT		٠ - ا	2.2	
1.02	.25	.85	95.	1.00	š.	•.	.4	1.02	1.07	%.	.65	98.	%.		68.
	.85	.97	95.	.87					1.03	€.	۲۰۰	1.10			
ě.	96.	85.	?	98.		_	. 06.	.6.	8.	1.00	95.	26.	% .		.88
NUMBERS 1	IN TABLE AKE P	E PHESSURE		CUEFFICIENTS Cp . Tr-S	4		13	NUMBERS	IN TABLE	ARE PRESSURE COEFFICIELTS C. PTPS	R COEFFIC	IEI.TS G.	취		
ERS I	NUMBERS IN BOXES INDICUPPER = VERTICAL DISPLANCE = HORIZONTAL DISPLANCE IN RIGHT LOOKING AFT.	SPLACEME UISPLACE T.	ACEMENT, POSITIVE FOR UPANSH HILL CEMENT, POSITIVE FOR UPANSH HILL CEMENT, POSITIVE FOR UPANSH HILL CEMENT, POSITIVE FOR PANE	E FOR UP	NSH OW FROM	FFT SEN	2335	UPPER = LUGER = TO RIGHT	JPPER = VERTICAL DISP CHER = HORIZONTAL DI TO RIGHT LOOKING AFT.	IN BUXES INDICATE FLOW DIRECTIO: IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FOR PLASH HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT LOOKING AT 1	T. POSITI	TIVE FOR	GHEES. MASH FLOW FROM	199	SAM
- TAB	NOTE - TABLE 15 SEEN FRUM THE FLOW	FROM TH	E FLOW			RACE.		NOTE - TABLE	TE 15 SE	IS SEEN FROM THE FLOW	101			22,	RAKE MOUNTING

LEF1 SAME	GREES.	CTION IN	Ou DIRE	OICATE FI	UNMERS IN BOXES IND JPPER = VERTICAL DIS LOWER = HORIZONTAL D TO RIGHT LOOKING AFT	UPPER :	LFFT BANKY	EES. SH FROM LFF	FOR UPWAS	DIRECTION POSITIVE	0 - W	DICATE FL SPLACEMEN DISPLACEM	
I	- H.	ICIENTS C	E COEFF	ARE PHESSURE COEFFICIENTS Cp .	IN TABLE AF	NUMBERS	Γ	e_	FI . 60 STI	7 5	COEFFIC	E PRESSURE COEFFICIENTS CP . T.	NUMBERS IN TABLE ARE PRESSURE COEFFIC
%.	š.	<i>\$</i> .	=	۲.	ą	1.01	å.	8.	86.		٠.	¥.	
	8.	.92	÷.	<u>.</u>				96.	26.		3.	**.	.6.
1.00	1.00	%.		٤.	.05	1.09	8.	8.	64.		.27	75. 74.	
-	20.1	%.		*	ş.			26.	٤.			.63	1.07
66.	1.03	1.00	0	1.10	4.	1.14	16.	1.00	.7.		O	2.	. 7. c. #
- -	_		RAKE	8.	19.	L	_	1.02	68.		RAKE	-95	-
66.	*.		۲.	1.07	%.	1.04	1.02	۲.	.97		\$5.	.83 .55	_
	*.	1.05	.6.	?	.55			8.	.75		2.		
66.		.92	·s.	.23	8.	26.	1.02		91.		۲۰.	т. к.	
<u>;</u>		1.00	9.	•				*.	·•.		.92	.97	76.
96.	6.	.92	*	•	.78	*6.	86.	28.	. 57		.67	1.15	
T:	_	<i>*</i> .	8.	÷.	1.0.1	Ľ	_	ss.	26.		1.18	.63	1.01
96.	*.	%.	·.	ě.	8.	8.	16.	.95	.92		1.03	.55 1.03	
	.65	.95	*		96.			9.	16.		.87	.93 .87	
%.	66.		. 6.	%.	8.	8.	16.	1.01	1.15	-	1 11.	_	1.
	1.01	*.	*.	<i>ŧ</i> .	8.			۶. ۱	.00		69.		69.
.95	**		.92	4.	8.	1.00	56.	8.	.95	•	96.	_	96.
	• -	••	.9	<i>\$</i> .	8.			٠,٠	_ ···	÷	.95	-	.95
8.	8.	-6.	.9	<i>ŧ</i> .	1.02	8.	26.	36.	86.	٠.	*6.		*6.
	DEG PSI=-4.0 DEG CONFIGURATION FHF		10 ALPHA= 4 = 11.5 PS	FOINT	KUN 21		T	CONFIGURATION FHF	CONF IGU		ALPHA= 8.0	RNOTS 9 ALPHA= 8.0	NUTS 9 11.5 PSF.

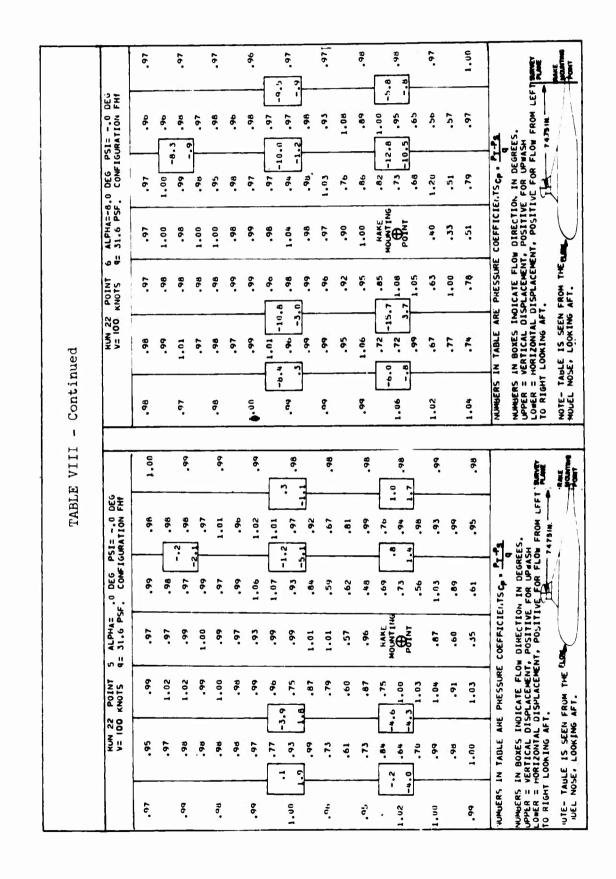
ABLE VIII - Continued 1.00 1	ABLE VIII - 1.100 96 9	ABLE VIII - 1.00 -1.1 -3.1 -3.1 -3.1 -3.1 -3.1 -3.2 -3.2 -3.4 -3.2 -3.4 -3.2 -3.4 -3.2 -3.4 -3.2 -3.4 -3.2 -3.4 -3.4 -3.4 -3.4 -3.4 -3.4 -3.4 -3.4	TABLE VIII - Point II ALPHAE-4, 0 DEG PSIE-4, 0 DEG PSIE-4	DEG PSI=-4.0 DEG	.98	%. [·]	.99 -7.2	6.	10.1 79. 79.	66. 00.1	1.04 .97 1.02	0.1	1.01	.06		96. 00.1 86.	.96 -7.5 1.00 -5.3	5 6	1.00	16. 60.1	ob. 10.1 *0.1	\$4.45 .05	IN DEGREES. OR UPASH FOR FLOW FROM LEFT SURVEY	**
ABLE VIII96 .96 .96 .96 .96 .96 .96 .96 .96 .96	ABLE VIII 96	ABLE VIII96 .96 .96 .96 .96 .96 .96 .96 .96 .96	ABLE VIII - 1.00 -1.10 -1.00		86.	8.	1.01	1.0.1	8.			.	-		_	3.						COEFFICIENT	DIRECTION POSITIVE F	-
ABLE VIII96 .96 .99 .99 .99 .99 .99 .99 .99 .99	ABLE VIII96 .96 .99 .99 .99 .99 .99 .99 .99 .99	ABLE VIII - 1.00 -1.1.00 -1.00	ABLE VIII - 1.00 -1.00 -1.00 -2.2 -2.2 -4.7 -2.2 -4.00 -4	POINT KNOTS	s.	8.	8.	1.00	86.	1.00	8.	=	: :	8 8	8.	٤.	_		s.	8.	8.	E PHESSURE	DICATE FLO SPLACEMENT DISPLACEME T.	FROM THE
ABLE VIII96 .96 .99 .99 .99 .99 .99 .99 .99 .99	ABLE VIII96 -3.1 -3.1 -3.1 -3.1 -3.1 -3.1 -3.1 -3.1	ABLE VIII96 .96 .99 .99 .99 .99 .99 .99 .99 .99	ABLE VIII - 1.00 -1.00 -1.00 -1.00 -2.2 -2.	RUN 21 V= 60	8.	1.09	.6.	8.	\$6.		8.	\$.	3.	26.	8.	8.	1.09	٠ • •	.36	4	.82	N TABLE AR	N BOXES IN ERTICAL DI ORIZONTAL LOOKING AF	NE IS SEEN
ABLE VIII -3.1 -3.1 -3.1 -3.1 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -3.4 -4.7 -	ABLE VIII -3.1 -3.1 -3.1 -3.1 -3.4 -4.2 -3.4 -4.2 -3.4 -4.2 -4.2 -4.2 -4.3 -	ABLE VIII -3.1 -3.1 -3.1 -3.4 -4.7 -9. -9. -9. -9. -9. -9. -9. -	ABLE VIII PH4 PH4 -3.11 -3.11 -3.66 -1.00 -1		8.		8.				8.	Ŀ		6		8.	1 :	_	1.05		6.	NUMBERS 1	UPPER = V LUGER = H TO RIGHT	NOTE- TAB
.0 DEG PSI = 4,0 DEG	TABI ALPHAS—4.0 DEG PSIS—4.0 DEG 11.5 PSF. CONFIGURATION FHT .93 .96 .97 .99 .95 .99 1.02 .94 .99 .99 .99 1.00 .99 .99 .99 .99 1.00 .1.00 .99 .99 .99 1.00 .1.00 .99 .99 1.00 .1.00 .99 .99 1.00 .99 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00 .99 .99 2.00	TABI POINT 11 ALPHAE—4.0 DEG PSIE—4.0 DEG NWUTS 4= 11.5 PSF. CONFIGURATION FHT N.96	TABI RUM 21 POINT 11 ALPMA=-4, 0 DEG PSIS4, 0 DEG 93	П	8.		56.		8.		1.00	_		8		1.00		_	8.		ŧ.		'n	- MOMENG
9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	11.5 PSF. COMFIGURE .93 .96 .96 .97 .99 .96 .97 .99 .96 .97 .99 .96 .98 .94 .96 .99 .99 .96 .90 .94 .96 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .9	POINT 11 ALPHAE=+, 0 DEG PS; -96	804 21 POINT 11 ALPHAE—4, 0 DEG PS; V= 60					•	00	*	. 66.	_	_	6 6	8.	66.		_	26.	-95	%.		FROM LEFT	
	11.5 PSF 93 94 95	POINT 11 ALPHAE-A KNUTS 4= 11.5 PSF .96 .97 .97 .97 .99 .99 .99 .99 .99 .99 .99	95 .95 .96 .99 .99 .97 .99 .99 .99 .99 .99 .99 .97 .99 .99	15-4.0 DEG	16.	_		*.	=			-		-			_	-				410	SIF.	

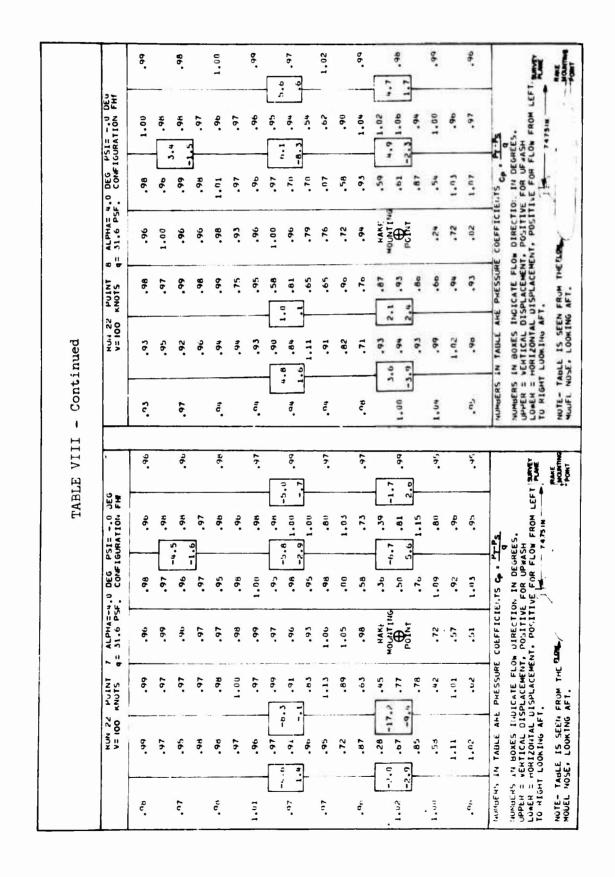


	RUN 21	PUINT KNOTS	15 ALPHAE 4	٠.	DEG PSI= 4.0 DEG CONFIGURATION FHF	25		NUN 2	1 POINT	16 ALPHA= .0 0	SF. CONFIG	DEG PSI=-8.0 DEG	
60.	96.	8.	76.	%.	8.	86.	6.	8.	.97	86.	8.	16.	6
	1.00		96.	L	-			16.		8.	86.		
96.	8.	1.02	8.	1.02	2.3	1.00	1.00	1.00		96.			1.02
	16.	.97	%.	1.00	89.			86.	8.	š.	• 6.	76.	
. 41	1.02	8.	1.01	99.	96.	8.	8.	1.00		.97	%.	6.	86.
	1.03	%.	8.	8.	8.			.97	ŧ.	86.	86.	<i>*</i> .	
66.	1.01	1.07	09.	86.	.9.	1.05	1.09	.97	*.	1.02	86.	96.	66.
	1.00	1.03	1.00	.80				8.	ŧ.	8.	1.00	*. 	_
39.1	1.00	-	1.00	88.	1.03	1.04	57.	8.	56.	96.	9.	96.	86.
		ē.	65.	1.05	%. 	_	_	6.	ş.	.97	86.	1:01	0-0-
1.02	86.	19:	.52	1.20	3.	96.	.43	.80	.12	66.	1.00	8.	1.01
	6.	۰6۰	1.09	1.08	.67				1.19	06.	96.	8.	
1.00	%	ş.	.35	.35	1.02	\$6.	2.	.27	.56	16.	96.	66.	5 .
	3.8 1.02	99.	MOUNTING	62.	\$. 		L	1.00	55:	HAKE	86.	1.01	
.15	1.02	26.	Φ ^S	62.	.50	1.01	20.	1.02	2.	0	.92	66.	2.2
	1.01	%.		99.	.8.	_		2.	9.		96.	8·5- %.	9
1.04	1.00	96.		.78	<i>š</i> .	86.	70.	08.	**	1.19	.96	*6.	96.
	1.01	66.	.29	64.	*			\$9.	χ.	1.1	66.	96.	
1.00	%.	1.01	96.	*5.	*9.	.6.	1.01	٤.	1.08	16.	<i>*</i> .	1.00	*.
ERS	NUMBERS IN TABLE ARE	E PRESSURE	PRESSURE COEFFICIE:,TS	51.15 co 51.15	ę.		NUMBERS	IN TABLE AN	ANE PHESSURE COEFFICIETS	COEFFICIE	175 G . P.	ฎ	
ERS IGH	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = LENTICAL DISPLACEMENT, POSITIVE FOR UPASH TO RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEME	N DIRECTION POSITIVE	FOR UPLA	EES. SH OW FROM LFF	The Same	NUMBERS UPPER = LONER = TO RIGHT	WOMBERS IN BOXES INDI PPER = VERTICAL DISP OWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	IN BUXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, PUSITIVE FOR UPPASH HORIZONTAL DISPLACEMENT, POLITIVE FOR FLOW FROM TLOORING AFT.	POSITIVE NT. POLITI	FOR UPINS	ES.	LEFT SURVEY
L TA	NOTE- TABLE 15 SEEN FR.	FRUM THE FLOW	*			PACE.	NOTE- TABLE	ALE IS SEEN	IS SEEN FROM THE FLOW	10			RAKE

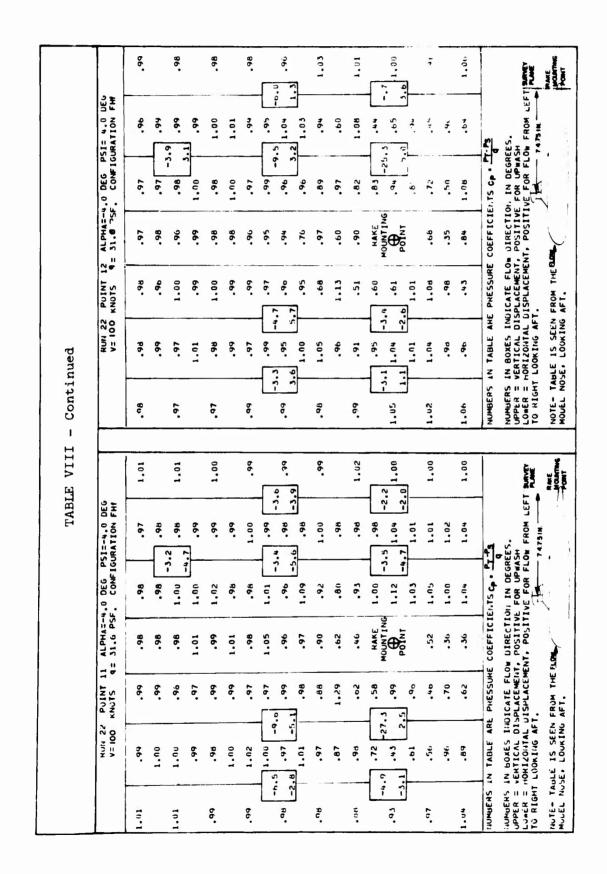


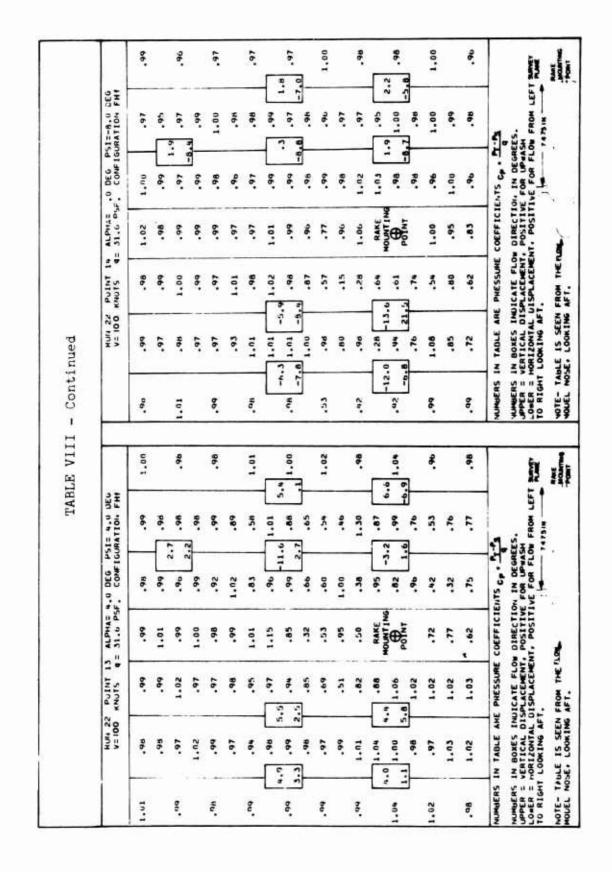
	RUN 21	PUINT 19 CNOTS 45	ALPHA=	0 DEG CONFI	PSI= 8.0 DEG			RUN 21 V=60	PUINT 20 KNOTS 4:	11.5 PSF	٠.	DEG PSI= U DEG CONFIGURATION FM	
-	1.01	1.02	66.	1.00	.92	1.01	86.	96.	1.00	26.	26.	86.	16.
-	1.01	1.01	1.03					66.	6.	66.	76.	 -	
	%.	8.	1.04	1.03	1.00	96.	%.	76.	<i>‡</i> .	96.	16.	*·	96.
	66.	1.03	1.03	.98	 €:			\$6.	96.	1.01	٠,٠	۶. ۲.	
	66.	1.01	1.00	66.	1.01	86.	96.	8.	.97	46.	1.00	%	16.
•	66.	1.01	1.02	.97	96.			.6.	96.	66.	66.	*	
-	1.05	1.02	1.01	1.01	96.	16.	* 6.	* .	ð,	66.	٠75	76.	.95
j.	1.04	20.1	1.02	*.	.%		_	.96		. 96.	.89	76.	Γ;
	1.04	1.03	1.05	1.02	1.03	96.	ē.	8.	1.03	1.01	76.	66.	96.
	1.02	1.02	.72					, é.	٤.	06.	.75	*.	<u>.</u>
-	1.03	1.05	16.	67.	16.	.88	96.	٤٢.	18.	1.16	.83	1.06	
-	1.04	1.03	99.	*0.	1.01			78.	.73	• 55	**	*9 ·	
	66.	1.04	.72	5 *•	ě	66.	.92	•5•	*	• 55	.78	.86	.93
	1.02	66.	HAKE	. s.	7 %	 √:		7 49.	۲. آ	RAKE	65.	_ 16.	Ţ.
777	1.04	66:	2 2 3 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.65	.26	1.03	1.05	.85	69.	₹ •	.57	<i>š</i> .	6.
; ;}_	1.01	1.02	POINT	.47	98.			1.16	9.	POINT	1.00	18.	<u>.</u>
-	1.04	1.03	.59	.67	.79	66.	1.04	.82	1.16	9#•	.72	8.	56.
-	1.04	1.06	.78	1.17	*7.			1.02	1.06	78.	.93	1.00	
-	1.05	1.02	06.	.24	9.	76.	1.01	8.	96.	\$9.	.72	1.03	· .
=	NUMBERS IN TABLE ARE	PRESSURE		COEFFICIENTS C Pr.Ps	41		NUMBERS	IN TABLE	E PRESSUR	ARE PRESSURE COEFFICIENTS Cp .	ENTS Cp . 1	Į.	
9710	CAL DIS	ICATE FLO PLACEMENT ISPLACEME	W DIRECTION POSITIVE	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LONG AT	ES. SH FROM LEI	\$ 1 A	UPPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VETICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	DICATE FL SPLACEMEN DISPLACEM T.	OW DIRECTION T, POSITIVE ENT, POSITIVE	DE TOR UP A	EES. SH OW FROM LEFT	
w	NOTE- TABLE IS SEEN	FROM THE BON	1			PLAKE	NOTE - T	TABLE IS SEEN FROM THE FLOW	FROM THE	FLOR	1	1	RAKE

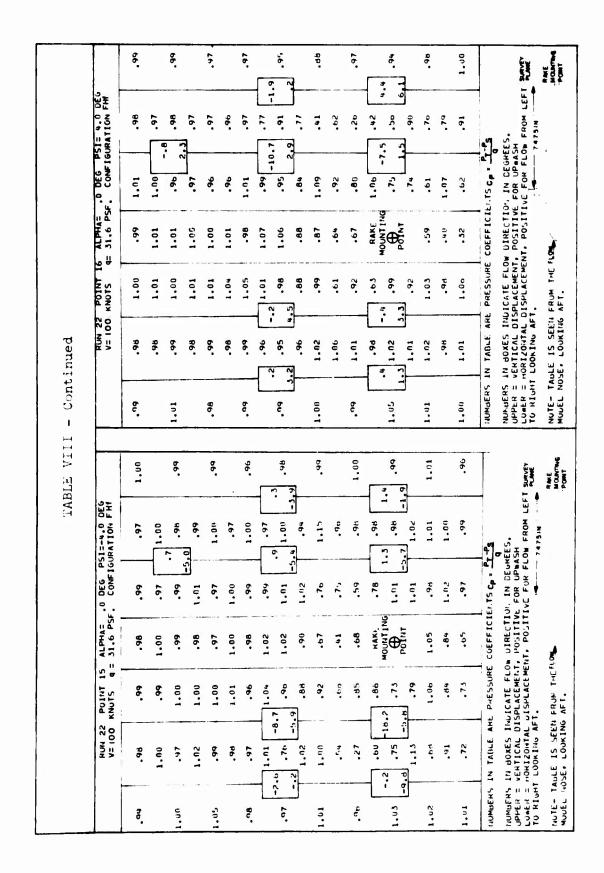


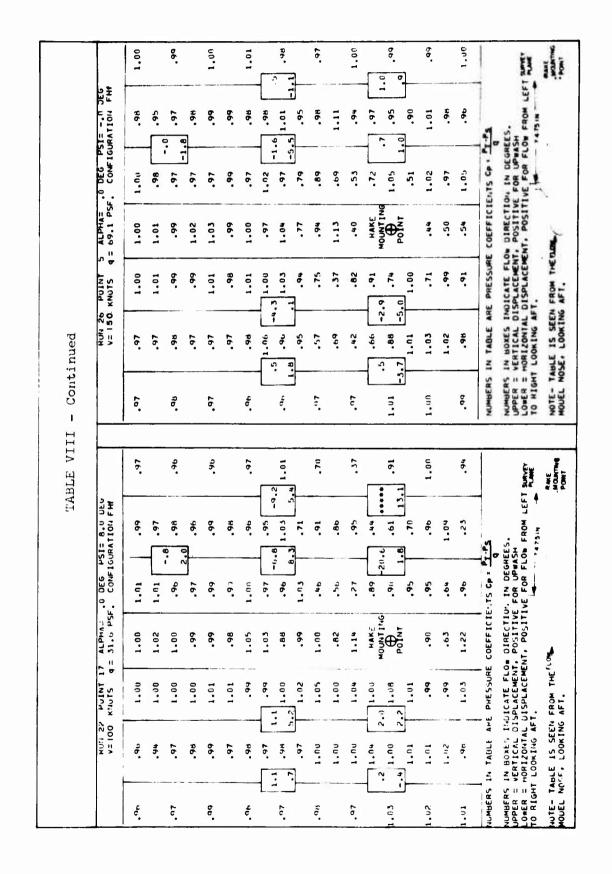


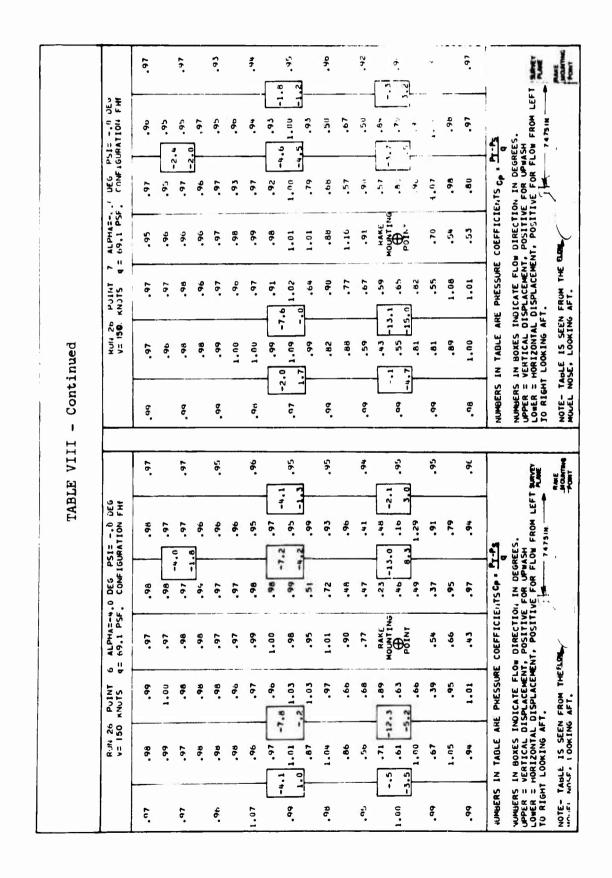
	HUN 22 V= 100	POINT KNOTS	9 ALPHA= 8.0 q = 31.6 PSF.		DEG PSI= -,0 DEG CONFIGURATION FHF			HUN 22 V= 100	POINT 1	0 ALPHA: 4.0		DEG PSI=-4.0 JEG	37
5.	.93	79.	16.	86.	76.	1.00	1.01	66.	.97	6.	96.	.97	6.
-	%	.97	76.	66.	%.			66.	6.	.97	L		
16.	*6.	٠6.	. 93	.98	96.	86.	96.	1.01	96.	.97	1.00		1.00
	*6	96.	96.	86.	66.	-		1.00	.95	.97	1.00	76.	
*c.	.9 5	.80	*6.	.95	¥6.	%.	₩.	۴.	1.01	96.	.98	66.	86.
	06.	.7.	68.	.95	66.			76.	.97	66.	1.01	6.	
٠ م۲	76 .	07.	.81	.47	10.1	16.	6.	.89	1.06	96.	1.01	8	16.
1:	₹6.	1.10	59.	٠. :	.95			16.	1.03	96.	*6.		-
.n.	98.	£	.68	.19	16.	66.	1.01	96.	.78	.78	.85	1.00	5.0.
<u>-</u>	1.02	22.	1.02		.20	 و	'] 	 	.75	9#.	1.07	. 36.	-2.9
6.	86.	.38	.64	.63	٠6.	86.	70.	.95	*.	.53	1.04	76.	1.00
	.67	69.	.51	.83	1.20			.76	.89	.31	.88	1.00	
¢.	06.	.82	.71	1.01	97	1.01	86.	-15	.14	35.	1.02	*6.	1.01
۲.	1.01	.63	HAKE	.96.	1:09			.59	9.1	RAKE	86.	1.80	<u> </u>
1.02 /.8	1.04	1.01	<u>.</u> ⊕	9.	96.	1.00	1.05	<u>-</u>		Polor International	1.0.1	9. 5.	1.01
	\$6.	٠,٠		ŗ.	• 56•	-		.75	\$.97	10.1	_
ъ.	66.	10.	.29	.83	1.00	8.	1.03	06.	.82	.71	86.	1.00	66.
	46.	*0.1	94.	96.	8.			07.	.81	96.	66.	1.01	
°c.	.6.		.31	36.	1.00	9.	1.01	.75	.81	.67	1.02	56.	ð. -
ILINAERS I	L IN TABLE A	AME PWESSINE	COEF	FICIE-ITS Co : 1	1. S		TUMBERS	IN TABLE ARE PHESSURE	PRESSURE	COEFFICI	COEFFICIENTS . P.P.	- L	
FRS L	UMMUERS IN BOXES ITALI UPPER = VERTICAL DISP TO REGIT LOOKING AFT.	QUMDERS IN BUXES TRUICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO REGALT FLOW FLOW FLOW FROM	DE DIRECTION POSITIVE	OU IN DEGRI L FOR UP#A	EES. SH OB FROM LEFT	Yame 1	CANABERS COPPER = LUNER = 10 RIGHT	THOMBERS IN BOXES INDICATE FLOW DIRECTION, IN DEWREES, UPPER = VEHTICAL DISPLACEMENT, POSITIVE FOR UPWASH ON THE DISPLACEMENT, POSITIVE FOR FLOW FRANT OR RIGHT LONGHES AFT.	DICATE FLO SPLACEMENT DISPLACEME	DE DIRECTION 11 POSITION POSITION	Or. IN DEUK E FOR UPAA IVE FOR FL		LEFT SURVEY
- TAB	L 15 5 E	NOTE- TABLE IS SEEN FROM THED.OR		! !	74.75th	Take Take	1407E - TA	TAULE IS SEEN FROM THE ELDIN	FRUM THE	1.00			PARE

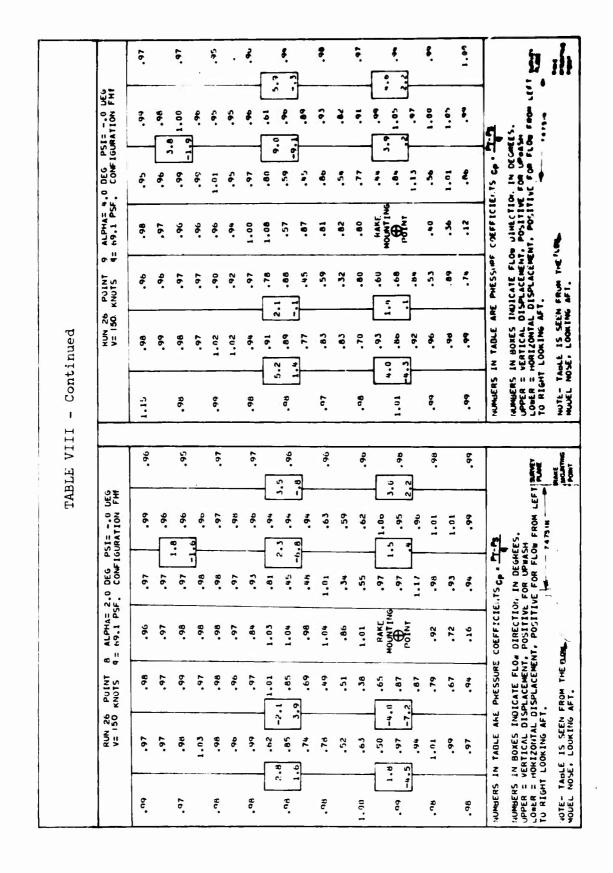












	96. 10.11	96.	66. 66. 66. 66. 66. 66. 66. 66.		99 99 99 99 99 99 99 99 99 99 99 99 99	96 66 86	÷ 6. 8.	* 6. 6. 8. 8.	46	76. 86. 96. 96. 100.1	6. 6. 6. 6. 6.	99 .99 .99 .90 .99 .99 .99 .99 .99 .99 .	8. 8.
96. 98. 99. 90. 90. 90. 90. 90. 90. 90	6 2	96. 64. 88. 88. 88. 88. 88. 88. 88. 88. 88. 8	.88 .79 .49 .85 .60 .60 .60 POINT	2. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	6.5.8 6.6.9 1.01 1.00	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6	6. 6. 6. 6.	2.2. 1. 1. 2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	.92 .91 .92 .93 .93 .93 .93 .93 .93 .93 .93 .93 .93	.91 1.02 .86 .90 .90 RARK POUNTING	* 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3.6 1.01 1.00 1.00 1.00 2.7 1.04 2.7 1.04 1.00	ş. ş. 10 8. 8.
, , , ,	1.00 .92	. 35	35. 33.	.97		1.02	00.1	8. 5. 8.	.75 .55	6. 88. 5.	86.	-	1.01
E 15		ICATE FLOW (SPLACEMENT, ISPLACEMENT, ISPLACE	CATE FLOW UNKERTON IN DEGREE STACKERNY, POSITIVE FOR URWASH SPLACEMENT, POSITIVE FOR PLOW FLOW THEFLOW	IN PEGR	ICATE FLOW DIMETRICATION IN DEGREES, PLACEMENT, POSITIVE FOR UPHASH ISPLACEMENT, POSITIVE FOR PLOSH RAWE ROW THEFLOW ISSUED THE FLOW ISSUED THEFLOW ISSUED T	T SURVEY PLANE	NUMBERS UPPER :: LOWER :: TO RIGHT	ME LORE	DOKES INDICATE FLOW CONTROL OF STATE OF	DIRECTION IN DEGREES, POSITIVE FOR UPWASH NT. POSITIVE FOR FLOW 1	FOR UPWA	EES.	FT SURVEY PLANE A PLANE

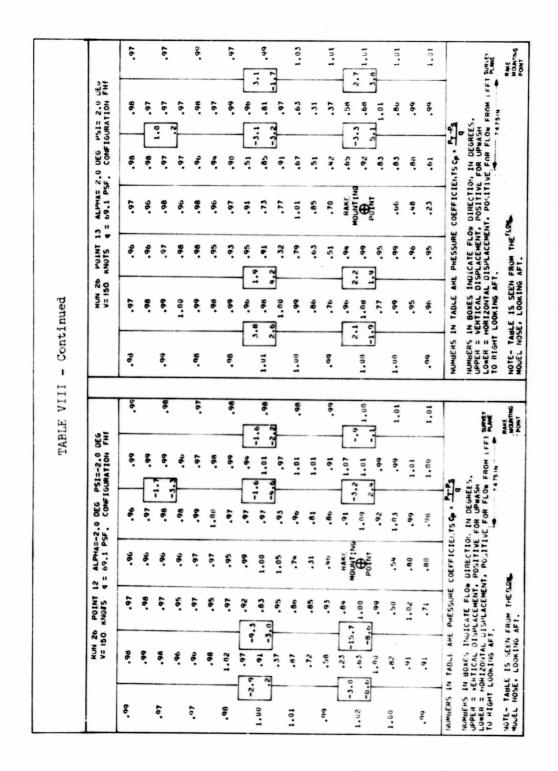


TABLE V RUN 26 PUINT 14 ALPHA= . 0 DEG PSI=-4.0 UEU . 07
--

	RUN 26 V= 150	POINT	16 ALPHA= .	0	DEG PSI= 2.0 DE	DEG		RUN 26 V= 150.	PUINT 1	ALPHA= = 69,1 PSF	0	DEG PSI= 4.0 DEG CONFIGURATION FHE	ے و
.07	96.	8.	%:	76.	%.	8.	76.	96.	%.	86.	96.	96.	86.
	16.	.9	76.	66.				.96.	6.	. 26.	·.	٠،٠	
.97	96.	\$.	76.	.95	76.	.97	96.	.97	.97	6.	<i>*</i>	76.	66.
	96.	8.	8.	٦ '۴.	%.			96.	.97	76.	%.	٠ •	
.97	66.		* .	.97	.97	%.	۲۵.	.97	.97	96.	76.	76.	.97
	96.	%.	.97	96.	8.			6.	.95	76.	.95	%	
6.	96.	8.	.93	.82	6.	%.	.97	66.	%.	.95	86.	.93	.97
L	*		86.	₹.		ተ•	_		*	96.	.92	*0.	- T
. ₂	8.	2,1	86.	4.		* • 1	e. 	* *	%. 9°.	79.	\$. \$	£ .	%. 7
86.	ŧ.		.0.	. 27.	. 35	36.	1.00	1.00		57.	1.02	3.	.97
	.83	.67	*	99.	27.			86.	.7.	69.	.58	.62	
.97	.83	60.	.37	.26	.17	1.01	8.	1.04	09.	.61	.60	.10	*·
8:1	* *	8: e	RAKE MOUNTING	26.	-3.1		.00	10.17.	.6.1	RAKE MOUNTING	1.10	₹ ₹ 	
-2.2	_	6.	POTINT	- 8.		9	_		1.07	POTINT	₽.	** **:	2.2
1.01	.93	1.06	.63	1.08	96.	86.	1.00	1.00	1.05	.32	96.	8.	.92
	96.	* .	9#•	.62	ŧ.			1.00	1.03	.24	.87	.87	
%.	76.	* .	96.	57.	1.05	%.	\$.	1.01	1.01	.25	.02	28.	. 93
ERS	NUMBERS IN TABLE ARE	RE PRESSURE	E COEFFICIENTS CP		1		NUMBERS	IN TABLE	ARE PRESSURE COEFFICIENTS C. PT-P	COEFFICE	ENTS C. 3	4	
ERS III	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = HORIZONTAL DIS TO RIGHT LOOKING AFT.	NOICATE FLO	T, POSITIVE	E FOR UPWA	CATE FLOW DIRECTION IN DEGREES. **LACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR LEFT	\$ 15 A	NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES I VERTICAL D HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO REGHT LONGING AFT.	DW DIRECTION F. POSITIVE ENT. POSIT	ON IN DEGR	SH SHOW LE	LFFT SURVEY
- TAE	NOTE- TABLE IS SEEN FI	N FROM THE SLOW	100			PAKE	NOTE- TA	TABLE IS SEE	IS SEEN FROM THE SLOW	100	7	!	RAKE

HUN 14 POINT 9 WE 60. KIDTS 9			OPERATING COND	CONDITIONS,		CONF TGORALTON	rup				
8.	5 ALPHA=	.U DEG PSI=0	AATTON FHB			HUN 14 V= 60.	POINT KHOTS	6 ALPHA=-8.U q= 11.5 PSF.	B.U DEG P	DEG PSI=0 DEG CONFIGURATION FHB	
	68.	1.01	1.05	75.	1.04	76.	1.02	1.02	%.	96.	Ď.
1.07 1.01	24.	1.8	1.00			8.	*6.	. 42	1.02	1.00	
.9. 80.1 30.1	1.05		£6.	1.06	.95	1.00	1.04	3.	.91	-95	ð.
1.09	1.16	1.19	ال، ال			96.	1.00	1.00			
1.08 1.12 1.50	67.	1.20	1,23	1:1	%.	.92	9.	1.03	76.	°.	1.00
1.30 1.30	1.08	88.	1:11			16.	9 9.	3.	66.	. 85	
.,792 .0.1	18.	.93	.89	56.	.93	.87	·6.	65.	1.00	16.	1.02
-4.5	52.		- 17		-12.9		1.05	ŧ :	1.18	1.19	41.5
.94 1.5 1.03 -1.4 1.07	• •	.84	19.	6.			1.2,	1.2u			
	.		§.	». 1	1.27	1.43	10.1	1.19	1,69	34.	1.23
. 1.0. 90.1	*5.	.95	96.			1.04	1.2.1	1.12	1.07	1.12	
1.05	£*.	.42	74.	1.60	1.28	%	1,3,	1.02	٤٤.	79.	1.18
.93	MOUNTING	, s.	84.	ر د	1.13	1.04 -10.9	÷ 3.	RAKE MOUNTING	ş, ş,	26.	3.03
3.6 4.1-	Polod		, 70	•			33.c	Polist	-i-		4.
26. 86. 7U.1	. 38	88.	16.	86.	1.11	1.02	۰6.	40.	٠,	0**	24.
10.1	.70	* .	ay			1.07	.7.	64.		*	
1.01	3,.	".	çh.	. 63	.97	1.05	ş	£6.	• 53	ç6 .	.87
NUMBERS IN TABLE ARE PRESCURE	PRESGURE COEFFICIENTS	NIS Co. Pres	5		NUMBERS	NUMBERS IN TABLE AR	ARE MRESSURE COEFFICIENTS	COEFFICE	3	8 -	
NUMBERS IN HOKE'S INDICATE FLOW DIRECTION IN DEARES. UPPLK = VENTICAL DISPLACE ENT. PUBLING FOR UPAASH TORER = HORIZONIAL DISPLAÇMENT, POSITIVE FOR FLOW FROW LEFT PLANE TO KIGHT LOUKING AFT.	LOW DIRECTION OF THE POSITI	FOR UP AS	RES.	SURVEY	UPPER = LOWER = TO HIGHT	NUMBERS IN BOXES INDICATE FLOW DIPECTION IN DESREES. LOWER = VENTICAL DISPLACEMENT POSITIVE FOR UP.ASH LOWER = HOKIZONTAL DISPLACEMENT, POSITIVE FOR LEW FROM LEFT SUMMY TO RIGHT LOWKING AFT,	ADICATE FLO ISPLACE PEN DISPLACEME TT.	TO POSITIVE	ON IN DESP	ES. SH FUOM LEF 7475 IN	SURVEY
NOTE- TABLE 15 SECU FFOM THE FLOW MODEL NOSE, LOOKING AFT.	E FLOW			RAKE MOUNTING	MODEL 10	HOTE- TABLE IS SEEN FOOM THE FLOW. MODEL HOSE: LOOKING AST.	THE THE	FLOW			RAKE MOUNTING POINT

	KUN 14	POINT	7 ALPHAS-8.1	-	DEG PSI=0 DEG CONFIGURATION FHB	200		RUN 14	P01117 KN075	8 ALPHA=-4.0	4.0 DEG F	DEG PSI=0 DEG CONFIGURATION FHB	200
*6.	86.	16.	*05.	06.	1.02	86.	96.	66.	1.00	97.	1,05	1.00	3.
	76.	6.	86.	ş. [e. [-			1.02	1.0%	65.	1.08	10.1	
96.	.92	6.	1.03	1.00	76.	1.03	6.	96.	30.4	1.05	8.		1.02
	.88	1.00	85.	۶.	٠٠. دو.			* .	1.06	1.10	26.	-6.2 1.03	
.95	.93	.89	84.	.87	**	\$6.	10.1	.82	30.4	1.16	88	.68	1.09
	1.04	.70	26.0	86.	1.02			.95	. 84	1.04	1.00	04.	
.93	1.04	6 .	£#.	1,12	1.16	.88	11.11	1.11	1.Ut.	1.20	1,13	1.15	1.08
	1.15	1.14	1.15	1.08	1.14	 [:	[5	01.1	1.1	1.51	1.19	1.22	_[
1.32	. 42	1.11	1.22	1.03	1.06	15.5	1.03	1.02	1.25	1.34	7.	90.	-7.0
-3.8	1.14	1.0%	86.	1.15	1.20	" :	<u>'</u>	.82	7.	1.12	.83	*	
1.10	1.00	.87	10.1	1.20	1.02	1.00	76.	1.01	ი2•		.83	66.	1.14
	1.05	9.	25.	9.	1,15			1.13	, B.	£0.	78.	66.	
.91	16.	76.	3.	.42	18.	1.07	8.	1.13	.8.	.70	.33	08.	1.02
	76.	1.5.	PAKE	.33	1.12			1.15	٠٠. اور	RAKE	•56	.22	[-
1.16 1.5	96.	\$ }	⊕ol NI Divi	83.	2. 1	1.25	1.10	1.09	1.3 1.05	Φğ	90.	£ 5	00-1
1.09	1.16	£ 4.	ç,.	. .	74.	1.05	1.02	1.05	٠. د.	60.	1.05		ş.
	1.16	.58		.	1.01			1.06	<i>š</i> .	90.	18.	1.01	
1.00	1.01	٥	63.	69.	1.02	6.	1.02	1.04	٠٢.	74.	16.	16.	50.
MBERS	NUMBERS IN TABLE ARE	PRESSUR	PRESSURE COEFFICIENTS		2 . d		NUMBERS	IN TABLE AR	ARE PRESGURE COEFFICIENTS	COEFFICI		Cp : P1-P2	
PER : V	JUMPERS IN BOXES IND UPPER = VERTICAL DIS UNER = HORIZONTAL D TO WIGHT I DOKING AET	DICATE FI SPLACEMEN DISPLACEN	IDICATE FLOW DIMECTION IN DEGREES. [SPLACEMENT, POSITIVE FOR UPWAS! DISPLACEMENT, DOSITIVE FOR FLOW FOR	INE FOR PE	IDICATE FLOW DIMECTION IN DEGREES. (SPLACEMENT, POSITIVE FOR UPASSH SURVAY DISPLACEMENT, DOSITIVE FOR FLOW FOUN LEFT PLANE TO STATE FOR PARTY TO STATE FOR PARTY TO STATE FOR PARTY TO STATE TO	FT SURVEY	JUMBERS UPPER = LOWER = TO HIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISFLACEMENT, POSITIVE FOR UPASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROW LEFT PLANE TO RIGHT LOOKING AFT.	ADICATE FLO	OW DIRECTION FOSITIVE POSITIVE	E FOR UPAN	SH FROM LE	SURVEY T PLANE
TE- TAE		FROM THE	FLOW			RAKE	NOTE - TA	NOTE- TABLE IS SEEN FROM THE BLOW	I FROM THE!	Tow.			R AKE MOUNTING

	NUN 14	FOINT KNOTS	9 ALPHA= 4.0 q= 11.5 PSF.		DEG FALE 0 DEG	EG HB		RUN 14	FOINT 1	10 ALPHA= 8.0		DEG PSI=0 DEG	E B B	
	\$6.	16.	1.04	69.	.82	.93	06.	59.	08.	08.	07.	65.		1:
	6.	6.	*	£.	•. 			ξ.	*	.72	3.	ş.	_	
	86.	16.	*8.	*	8.	.78	.00	8.	.58	00.	19.	*7.		.80
	8.	1.04	.72	? *.	.8.			.70	÷.	12.	.55	· ·		
	.92	1.12	ě.	16.	\$.	8.	8.	.57	. 47	.53	11.	.51	-	1.54
		19.	30.	1.27	.75			.61	79.	* 5.	76.	99.		
	.6.	9.	٠,٠	\$	26.	1.09	8.	1.02	.6.	64.	.93	.63	<u>:</u>	1.10
L	-£.	*s.	80.	91.1	1.0	[8.	-f	18.	87.	1 6.	-[
·	1.22		F. 5.	* * * %	1.1	6. 5. •.	00.1	-1.3	4. 5.1- 1.6.	\$6.	2 6 .	.5 1.14	1	10.1
	16:	6.	1.05	.7	16.	3.	.97	<i>*</i>	.82	3.		š.	<u> </u>	66.
	6.	٠8.	94.	10.	78.			.72	1.04	.51	1,00	1.00		
	\$6.	•	25.	٠,	96.	%	76.	8.	٠6.	97.	**.	.92	•	3.
1	1 92		MOUNTING	25. 29.	.9. 1.10	- 2.1	21.1	68.	ğ. 3.	MOURTING	6. 8.	26. 10.1		6
	.97	~: 		₹.		:]-	_	8:1	·••	•	ē.	57.17		
	16.	.8.	11.	14.	16.	56.	1.05	66.	•5•	٠٠.	1.00	1.00		5
	1.01	6.	14.	86.	1.00			1.01	6.	40.	.93	1.00	-	
1	1.00	1.02	£0.	.73	56.	98.	* .	86.	.6.	88	1.01	06.	•	16.
S	NUMBERS IN TABLE ARE	-	RESSURE COEFFICIENTS		1 · 6		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	RE PRESSURE	COEFFICIE	3	21.5		
5 " " 1	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VEKTICAL DISPLACEMENT, POSITIVE FOR UPLASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FHOM TO RIGHT LOWKING AFT.	DICATE FI SPLACEMEN DISPLACEMENT.	UT POSITIVE	IN IN DEGR	EES. SH OW FROM LI	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGH	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGRES. LOWER = WORTICAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOWING AFT.	HOICATE FLO ISPLACEMENT DISPLACEMENT FT.	OW DIRECTION FOSITIVE	E FUR UPW	REES. ASH LOW FROM LI	LEFT SURVEY	ž y
=	NOTE- TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW.		1	PAKE	NOTE- T	NOTE - TABLE IS SEEL FROM THE FLOW	11 FROM THE	FLOW		1	RAKE	RAKE

	RUN 14 V= 60.	FOINT KNOTS	11 ALPHA= .0		DEG PSI=-8.0 DEG	960		RUN 14	POINT KNOTS	12 ALPHA=-8.0 q= 11.5 PSF.		DEG MSI=-4.0 DEG	
.97	18.	26.	1.07	1.04	5.	96.	.92	96.	76.	66.	₹.	66.	66.
	%	.93	1.00	1.06				.92	₽6•	. 96.	٠.	1.00	
.92	1.07	*6*	98.		*.	.76	.92	6.	86.	54.	26.	26.	1.01
	1.15	1.20	1.47		01.1			6.	.88	86.	•. •.	\$. \$.	
1.25	8.	1.22	1.28	1.22	1.02	1.15	ŧ.	.6.	.88	96.	۶.	69.	6.
	1.17	1.11	1.09	1.26	1.02			8.	.91	24.	1,05	-95	
.97	9.	*6.	SH.	1,16	8.	1.03	<i>*</i> .	1.00	·••	*1.	1.10	1.11	98.
[99.	٠٠.	16.	1.05	10.1	_		1.00	1.00	11.1	61.1	12.1	_[:
.82	76.	-3.1 .8th	đ.	1.03		1.01	\$ ·		-9.4	1.13		1.29	-5.7
	.28	*. 	1:1	36.	1.09			30	31.1	1.19	1.42	1.07	7_
94.	.57	.7.	90.	%.	1.05	86.	1.65	29.	1.25	*	1.1	1.47	1.12
	1.10	.37	3.	8.	1.09			٤.	1.13	76.	1,05	1.27	
96.	.32	. st.	10.1	10.1	66.	1.00	1.06	1.	16.	1.34	.	.92	1.01
l	•65	÷	RAKE	8.	8.	_[li li	5.	į	RAKE	8.	.92	_ [:
1.02		3.7	P O INC	8.	-	e.	* · ·	-3.6	-2.4	P N N N N N N N N N N N N N N N N N N N	٤ ۽	-7.4 L.U3	š.
97.1			9		, ,	-	1.03	- %:	: : -	95.	1.00	 - -	-
	9.		1.04	1,02	1.02			š.	s.	90.	1.00	1.06	
.95	36.	•51	1.02	1.05	8.	\$.	8.	5.	į.	0*.	1.05	1.00	.92
MBERS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS	ENTS C.	¥.		KUMBERS	NUMBERS IN TABLE AF	RE PRESSUR	ARE PRESSURE COEFFICIENTS		इसे-	
PPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = WERTICAL DISPLACEMENT, POSITIVE FOR UPWASH FROM TO RELAT LODGING AFT.	NOICATE FLO	T. POSITIVENT. POSIT	ON IN DEG	AFES. ASH LOW FROM LE	LEFT SURFA	UPPER E TO RIGHT	WHEERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. PPER & VERTICAL DISPLACEMENT, POSITIVE FOR UPASH OFFICE A HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM O RIGHT LOOKING AFT.	NOICATE FLISPLACEMEN DISPLACEMEN FT.	ON DIRECTI IT, POSITIV IENT, POSIT	INE FOR UPY	ASH LOW FROM LEI	LEFT SURVEY
TE- TA	NOTE- TABLE 15 SEEN	N FROM THE FLOW	200			RAME MOUNTHS	NOTE- T	TABLE 15 SEE!	IS SEEN FROM THE FLOW	FLOW	1		RANCE MOUNTING

96 99 1.01 1.05 99 99 96 96 96 96 99 99 99 9	-	8.	V= V = 0.0	POINT 16 KNOTS 9=	ALPHAS 11,5 P	_	DEG PSI=-4 2 DEG CONFIGURATION FHB	. 8
	00.1		86.	1.05	97	3.	1.10	1.13
1.03 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05	66.		.92	1.27	999	28.	8.	
1.03 1.03 1.04 1.05 1.05 1.05 1.05 1.05 1.06 1.06 1.06 1.06 1.06 1.06 1.06 1.06	7.01	\$6.	7.	.83	68.	.93	8.	. 68
1.05 1.05 1.05 1.05 1.09 1.00 1.00 1.00 1.00 1.00 1.00 1.00	<u>.</u>		6.	.6.	65.	٠. دو.	٠ <u>٠</u>	•
1.05 1.05 1.07 1.09 1.09 1.09 1.09 1.09 1.09 1.09 1.01 1.01	s#. 96.	1.00	*	%.	1.29	69.	1.40	6.
1.03 1.43 1.44 1.45 1.45 1.46 1.04 1.04 1.04 1.04 1.04 1.04 1.01 1.04 1.04	\$6.		94.	1.21	1.09	1.16	1.19	
-6.6 1.41 1.27 1.00 1.11 .94 .93 .94 .94 .94 .94 .94 .94 .94 .94 .94 .96 .	.79 1.05	.,	•	1.27	1.27	1.10	\$6.	1.24
-1.1	1.96		98.	ž.	1.05	1.02	1.05	[·
1.04	.93	66.	1.12		7.7.	.78	16.	1.02
1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01	, k		.95	رة د:	.81	1.04		2
1.01 1.16 1.75 1.04 1.16 1.04 1.16 1.04 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.1	66.	1.15	1.02	3.	67.	.21	. 67	65.
-12.5 .04 -17.8 .45 1.00 1.19 -12.5 .99 -17.8 .40 HOUNTING .59 -3.3 1.00 -1.7 .04 -20.2 .52 .59 .94 1.00 -7.8 .1.0 .1.0 .1.0 .1.0 .1.0 .1.0 .1.0 .1	1.16		.73	*	1	1.04	1,05	
-12.5 .99 -17.8 .40 MOUNTING .59 -5.3 1.00 -1.7 .98 -1.7 .98 -1.00 -1.7 .98 -1.00 -1.7 .98 -1.00 -1.00 -1.7 .98 -1.00 -1.00 -1.7 .98 -1.00	1.19 1.28	96.	.92	1. u.j.	15.	.56	16.	1.05
1. 99 -17.8 99 -17.8 99 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1	1.26	\[\frac{1}{2}	66.	10°1	RAKE	26.	00.1	_[
	1.00	1.09	1.02	18.	g ⊕o	1.00		96.
	,		*. *	٠. وو		76.	86. -	_
. 76	1.00 1.02	1.03	\$	1.20	1.04	96.	76.	5.
60. Pr. L.C. PT.	86.		26.	.74	60.	36.	*6.	
	96.	96.	18.	.8.	n9•	76.	1.02	96.
MUMBENS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT-PS	2 2 2	NUMBERS IN TABLE		FRESSURE	ARE MRESSURE COEFFICIENTS	8	F - F	
FROM LEFT		NUMBERS I UPPER # V LOWER # H	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGREES. POPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO MIGHT LOWKING AFT.	TCATE FLO	W DIMECTIC POSITIVE NT, POSITI	N IN DEGR	EES. SH OW FROM LEF	A STANKEY
	MONTHG	NOTE TAB	TABLE IS SEEN	SEELI FROM THE FLOW	Jos.			PAKE WOUNTING

DEG Pet= 4.0	HAE 4.0 DEG Port 4.0
	ALPHAE 4.0 DEG TSIE 4.0
40.1	
1.11	_[•
	• •
*6.	
.74	
46. 64.	_
.72	-0 61770-7970
.56	10.1
77. 6.1 54. 54.	1.9
	60.
.58 1.12	
ξ β. ξ#.	
1.00	۶. —[-
. 72	. 72 . 40 . 40
16.	
94. 19.	
34.	
CIENTS Cp = Pr-Ps	NUMBERS IN TABLE ARE WRESSURE COEFFICIENTS CP = PI-PS
TION IN DEGREES. IVE FOR UPASH STIVE FOR FLOW FROM LEFT SAME	FROM LEFT
٨	•

	KUN 14 V= 60:	POINT I	19 ALPHA=-8.0 q= 11.5 PSF.	CONFIG	DEG PSI= 4.0 D	DEG FHB		RUN 14 V= 60	KNOTS 4:	0 ALPHA=-8.0	DEG	DEG PSI= 4.0 DEG	
96.	* .	1.01	1.05	8.	\$6.	86.	\$6.	8.	6.	1.09	36.	%.	56.
		1.04	1.06	8.				.93	1.00	.92	86.	چ	
.97		.97	1.01	.05	68.	.93	.	96.	96.	3.	*.	٠, ،	3.
	86.	1.00	۲٠٠	.8.	*			8.	.6.	66.	. 76.	\$. V.	
.92	1.02	÷.	58.	6.	.93	.89	<i>\$</i> .	6.	.97	3.	66.	16.	.92
	1.05	1.05	70.	1.07	1.04			* .	1.04	54.	66.	1.06	
.72	1.09	1.11	1.06	1.14	1.14	.52	.87	68.	1.07	1.12	86.	1.00	
-[-	1.25	1 1.04	1.14	91.1	.95			79.	1.0,	1.12		1.01	
1.23	1.43 -11:3	2 -	1.15	<u> </u>	91.1	1.1	1.08	1.05		10.1	<u> </u>	7. 9	1.5 1.14
1.10	1.0	1 1	1.13	1.03	16.	· .	1.06		1.2.	1.52	1.20	1.19	
	1.05	6.	3.	ñ.	.67			1.22	1.0,	1::1	1,15	1.17	
.93	1.06	96.	\$6.	.83	69.	66.	1.15	1.13	1.00	٤٠.	.98	*6.	. 43
-10.		1.0	RAKE	19.	eć.		-10.8	1.01	٠٠. ١٩٠	RAKE MOULTING	1.08	_	7
1.18	1.02	1.00	⊕ ^o N	24.	20.	£.		80.6	-1.9 1.02	θζ	در. در	5 7	۶. ت.
1.04	1.18	1.1%	•	.32	.60	.86	1.03	.97	ð.	60.	60.	67.	3.
	1.02	1.07	5.	**.	88.			86 .	16.	74.	64.	40.	
76.	1.06	.93	Det.	16.	99.	.92	.92	1.10	1.03	67.	8.7	.72	.
BERS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS	11 00011	Sp . 42		NUMBERS	IN TABLE	E PRESSURE	ARE PRESSURE COEFFICIENTS		6 . P.P.	
ER =	NUMBERS IN HOXES INDICATE FLOW DIPECTION IN DEGREES. LOWER = VERTICAL DISPLACEMENT, POSITIVE FOR UPFASH LOWER = HORIZOHTAL DISPLACEMENT, POSITIVE FOR FLOW FOOM LEFT SHINKY TO RIGHT LOWING AFT.	DICATE FLOSPLACEMENT.	OW DIPECTION FOR POSITI	IN IN DEGREE FOR UP A	SH FROM L	EFT SURVEY	UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEAFES. PUPPER = VERTICAL DISPLACE-EUIP, POLITIVE FOR UP-ASH LOWER = HORIZOMAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO KIGHT LOOKING AFT.	DICATE FLO SPLACE: ENT DISPLACEME T.	W DIMECTIC POSITIVE	ON IN DESR	SH NW FROM LEF	LEFT SUNET
NOTE- TABLE IS SEEN	NOTE- TABLE IS SEEN	FHOM THE FLOW	FLOW			RACE	NOTE- TABLE	NOTE- TABLE IS SEEN FROM	IS SEEN FROM THE ROW	FLOW.	;		RAKE

1.00 1.03 1.04 1.04 1.01 1.09 1.05 1.04 1.00 1.00 .92 1.02 1.01 1.05 1.02 1.02 1.00 1.24 1.51 .96 1.25 1.47 1.06 1.19 1.00 1.24 1.05 1.02 1.05 1.05 1.00 1.05 1.05 1.00 1.11 1.05 1.05 1.09 1.06 1.20 1.01 1.01 1.05 1.00 1.06 1.20 1.00 1.01 1.01 1.05 1.00 1.06 1.01 1.01 1.01 1.05 1.00 1.06 1.00 1.00 1.01 1.01 1.00 1.00 1.00 1.00	1.04 1.09 1.09 1.09 1.09 1.09 1.09		i v	1 2 4 5 6 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7	2. 8. 8. 8. 9. 9. 8. 9. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	·	95 96 90 10
- 92	1.20 1.08 1.08 1.08 1.08 1.08		, , , , , , , , , , , , , , , , , , ,			.90	~ ~
-3.6 -3.6 1.11 .89 .3.8 1.20 1.20 .93 .3.8	1.20	N 1		\$ 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		79. 11. 18. 18. 18. 18. 18. 18. 18. 18. 18	~ ~
-3.62	1.08 1.08 1.5.5.9		i v	.99		11.11 .89 .96 .15.13	
1.2% 1.05 1.20 1.15 1.02 1.30 1.08 1.19 1.08 1.19 1.08 1.19 1.09 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30	2, 68 2, 88 3, 86 4, 69	i i	1-2.6	1.09 96. 75.	L	86.	~ ~
1.05 1.20 1.15 1.02 1.50 .90 .95 .95 .98 .98 .95 .98 .98 .98 .99 .95 .98 .98 .98 .99 .99 .99 .99 .99 .99 .99	2, 6, 5,	\$ \$	6 6	8 5 4	-	8. 11.	~ ~
-3.6 -92 -5.4 -0.5 -9.0 -95 -5.5 -9.8 -5.5 -9.	-1-8-5-1-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8-8	\$6. \$9.		.75	L	11.13	~ ~
-3.6 -3.4 .0.1 .0.6 .00 -3.5 .70 -3.5 .0.8 -3.	-0-1-18.84 -0-18.55	\$.	-5.6 -2.6	50.	-	18.	_
9. 9. 9. 1.0. 1.0. 1.05 9.2 0.0 18.5 9.8 9.9 9.9 9.9 9.9 9.0 1.0.0 18.5 9.2 9.2 9.0 18.5 9.9 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	18.5	-	· •	_		1	_
99 99 1.00 1.11 1.05 9.2 .40 -16.5 97 .97 .99 .97 .99 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .76 1.00 .99 .99 .70 .90 -1.01 1.01 1.00 1.00 .99 .70 .99 .70 .99 .70 .99 1.01 1.01 1.00 1.00 .99 .70 .99 .70 .99 1.01	-18.5	_	-2.6	9	.61	-95	_
-2.0			٠٠٠ الم	75.	.57	.92	_
3.3 .95 .1.01 .53 1.02 .76 1.02 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05			.91	99.	69.	86.	66.
-2.0 .95 -3.3 .94 HOUNTING .97 -4.5 .29 .76 1.02 1.05 1.05 3.3 .95 .95 1.01 1.01 1.01 1.01	92.	-	.66	57.	16.	66.	
3.3 .95 -3.3 .94 HAKE .97 -4.5 .90 -1.0 1.14 1.14 1.01 1.01 1.00 .93 .76 -1.0 1.01 1.14	1.02		.66	13.	5.00	06.	1.02
3.3 1.00 -3.3 94 HOUNTING 34 -4.5 .29 -1.01 1.14 1.14 3.05 .32 .3 .76 -1.01 1.01 1.14 1.00 1.00 1.00 1.00 1.00	06	_		RAKE	1.0.1	•15	
	1.01	**	.03 -2.2		.37	59.	66.
20.1 59, 7, 50, 00.1 10.1	?	_=	÷: •:	Z C	1.01	*: *	- -
	1.05		8.	•5•	1.00	1.01	1.02
1.02 1.00 .94 .59 .76	92.	-	10.1	75.	9.	\$6.	
1,02 1,03 1,03 1,00 ,52 ,71 ,99			76. 76.	.83	.87	5 .	.93
MANGENS IN TABLE ARE PRESSURE COFFICIENTS CP . PT.PS		KINDERS IN TABLE	BLE ARE PRESSURE	TE COEFFICIE	COEFFICIENTS CP . FI-FS	4	
LACEMENT POSITIVE FOR UPWASH SPLACEMENT POSITIVE FOR UPWASH SPLACEMENT POSITIVE FOR PLOW FROM LEFT SAMEY	A SAME PLANE	APPER = VERTIONER = HORIZO	IN BOXES INDICATE FLOW DIRECTION IN DEGRES. VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM	UT. POSITIVE	N IN DEGRE E FOR UPWAS IVE FOR FLO		LEFT SURVEY
TO RIGHT		TO RIGHT LOOKING AFT.	ING AFT.			7475M	P. AME
NOTE - TABLE IS SEEN FROM THE BLOSS. NOTE - TABLE NOSE, LOOKING AFT. NODEL NOSE	9	TABLE HOSE.	IS SEEN FROM THE FLOW LOOKING AFT.	F PLONE			MOUNT BIG

	RUN 15	POINT	6 ALPHA=-8.0	CONFIG	DEG PSI=0 DEC	3 0		HUN 15	KNOTS 9	7 ALPHA=-6.0 = 11,5 PSF.		DEG PSI=0 DFG CONFIGURATION FHB	
*6.	8.	76.	76.	8	8.	10.	56.	86.	6.	72.	16.	1.02	3:1
	.93	.97	*6.	8	8.			1.02	.60	15.	. Se.	1.01	
26.	.93	*6.	95.	66	16.	56.	8.	.95	6.	1.00	1.00	1.uh	1.05
	8.	76.	٤٠.	6	0.1	2		.92	10.1	1.05	1.0.1	56.	
•96•	6.	26.	9.	1.04	1.01	1.05	66.	68.	1.0	85.	66.	36.	£4.
	8.	1.02	607	1.04	1.00			1.08	6.	1.00	50.	1.07	
*6.	.85	6.	76.	86.	.82	1.01	.91	1.02	96.	1.04	1.08	1.13	.87
_[•	44	9	63.	.8	90.1			1.03	1.0	4.00	1.09	Ş	4
1.07	00	<i>6</i> .	1.05	1.05	1.02	10.1	1.12	1.15	1.11	5 h •	1.06	32	69.
	87 -8	· · ·	1.12	1.12	-2.9		•	-1.9	-1.8	1.14	56.	-2 -2 . 30	¥.
9.	10	1.0,1	1.08	6.	1.12	1.27	.63	1.13	1.0,	£4.	fo.	16	1.00
	.97	1.0.	.74	.79	7.		_	16.	.71	7	10.1	50.00	
66.	1.09	.72	38.	6.	54.	1.07	8.	.88	.70	40.	6 .	D D	1.06
	1.03		RAKE	.52	۲.			.75	- i	ZAKE	*0.	.95	_[
1.12	18.		Φ.	8			1.0%	1.10	15.4	₹ •	.67	.60	3.00
	.93	44.		92.	. se	a]			, .		*	1.6.	7
1.06	.92	3.	. 57	.01	96.	.93	1.04	1.14	3	34.	.78	*6	1.92
	. 83	(1)	٠٠. م	.37	95.			86.	·.	.16	3,	34.	
.93	.78	16.	17.	76 .	56.	65.	1.03	1.04	.7.	63.	.72	1.12	
UMBERS IN	NUMBERS IN TABLE ARE PRESSURE	E rRESSIR	CUE FICIENTS	INTS Co PT	2 5		SAJAMOS	IN TABLE	ARE PRESOURE	E COEFFICIENTS	ENTS CP :	4.	
NUMBERS IN UPPER = VE LOWER = HC	WHEERS IN BOXES INDI- UPPER = VERTICAL DISP- LOWER = MORIZONTAL DI- TO RIGHT LUUKING AFT.	DICATE FLOSPLACENT	HUMBERS IN HOXES INDICATE FLOW DIMECTION IN DEGREES. UPPER = VERTICAL DISPLACE-ENT, POSITIVE FOR FLOW FROM TARGET LOWERS FOR FLOW STATEMENTS FOR FLOW FROM TARGET LOWERS MET TO RIGHT LOWERS FOR FLOW FROM TARGET LOWERS MET TO RIGHT LOWERS FOR FLOW FROM TARGET FOR FIRST FOR FROM TARGET FOR FROM THE FROM THE FOR FROM THE FROM THE FOR FROM THE FROM THE FOR FROM THE FROM TH	N IN DECR	5 2	LEFT SUMEY	COMPERS II	HUMBERS IN BOXES HIDICATE FLOW DIFECTION IN DEGREES. UPPER = VERTICAL DISPLACE.EIT. POSITIVE FUR UPSASH LOWER = HORIZOHTAL DISPLACEMENT. POSITIVE FOR FLOW FURNITHER INCRING AFT.	IDICATE FLISPLACE : 1 DISPLACE : EM	OW DIFECT! T. POSITIN	ON IN DEC	REES. ASH LOW FYOM	٠
HODEL NOSE	HOTE TABLE IS SELI FROM THE FLOW MODEL NOSE, LOOKING AFT.	FROM THE	F.0%			RAKE MOUNTING	'-OTE- T	NOTE - TABLE IS SEEN FROM THE FLOW	FLOW THE	FLOW.	<u>!</u>		P. Ast.
							- AODEL R	USE LOOKING					N.Cod.

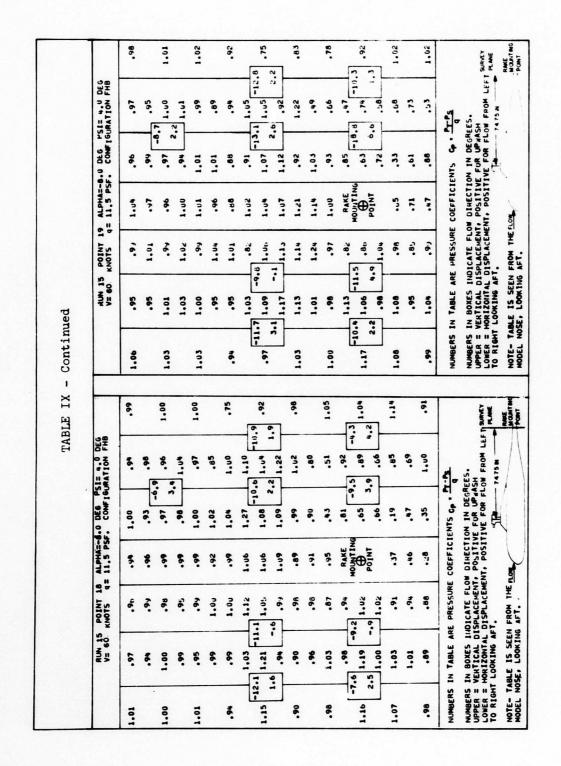
	MUN 15	POINT K10TS	8 ALPHA=-4.0	CONFIG	DEG PSI=0 DE	P.C. F.HB		NOW 15 V= 60.	POINT KNOTS	L 11	F. CONFIC	ALPHAE 4.0 DEG PSIE0 D	PE's FHB
26.	86.	6.	72.	1,01	56.	86	1.95	96.	1.00	S.	16.	1.00	.87
	.97		74.					6 .	ę.	1.00		09.	
\$	%	16.	1.03	.97	66.	8.	96.	ě.	1.00	1.10			3.
	6.	1.03	1.02	98.	£6.			e	.	۶.	_		
1.00	.8.	1.02	10.1	68.	.65	76.	26.	1.02	۰,	95.	e .	1.19	1.20
	66.	.6.	76.	06.	1.02			1.01	₹ 9.	06•	٤.	. 65	_
1.02	.97	1.0.	1.07	1.03	1.08	1.03	1.06	۲.	9.	ç0.	.75	56.	1.05
ı	1.03	1.04	66.	1.04	.97			₹. -[:	.5. 4.6-	35.	₹.	*9. [7.1-	-[
86.	9-0-1	96.	1.00	26.	1.09	1.11	6.	8.	3.	98.	.57	1.02	₹. : `
	66.	.,	.85	.64	1.10	1.0			3.6	57.	.52	50.1	<u>.</u>
96.	1.03	٠.	1.05	5.	26.	00.1	96.	ş.	16.	3.	? .	56.	1.01
	1.04	1.02	9.	17.	.72			1.04	<i>?</i> .	2.	٠,	*9.	
.80	.93	.7.	95.	64.	.92	66.	.97	6.	* .	*	1.09	1.06	10.1
		.8.	PAKE	.27	.95	_ 		10:1	٠٠٠ الم	RAKE	ş.	1.03	-{:
1.00	-6.6 -10.8	٠٢٠	MOUNTING HOUNTING	26.	90.1	-3.R	= -	8.	.5.	⊕ ₂	1.00	1.02	1.01
•	-1.6	.5.	POINT	69.	-7	=]			· -		_	*.	:]-
1.05	1.00	79.	.79	<i>š</i> .	1.01	96.	1.02	1.01	٠٢.	13:	· 6.	• 95	66.
	1.00	1.04	1.13	86.	76.			1.02	.97	.52	. 97	1.09	
1.02	1.00	<i>*</i> .	.74	1.06	1.01	<i>ā</i> .	1.02	3	1.00	1.05	96.	1.00	56.
UMBERS	NUMBERS IN TABLE ARI		PRESSURE COEFFICIENTS Cp :	NTS Cp : P	S T		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP : P	RE PRESSURE	COEFFICI	ENTS CP :	5 - 1	
JPPER =	WUMBERS IN BOXES PUBLICATE FLOW DIRECTION IN DEFREES, UPPER = WERTICAL DISPLACEMENT POSITIVE FOR PLOW FLOW FER HORIZOITAL DISPLACEMENT, POSITIVE FOR FLOW F	IDICATE FLO	DICATE FLOW DIGECTION IN DEGREES. SPLACEMENT POSITIVE FOR LUMASH DISPLACEMENT POSITIVE FOR FLOW LEFT	FOR UPAN	SH SH FROM LE	SURVEY FT PLANE	UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DINECTION IN DEARES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HORIZONAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	NDICATE FLO ISPLACEMENT DISPLACEME	OW DIRECTION FOSTER	E FUR UP	IEES. ISH OW FROM L	LEFT SURVEY
OTE- T	NOTE - TABLE 15 SEEN	FROM THE	FLOW			RAME MOUNTM	MODEL N	NOTE- TABLE IS SEEN FROM THE BOW MODEL NOSE, LOOKING AFT.	S AFT.	To.			MOUNTING POINT

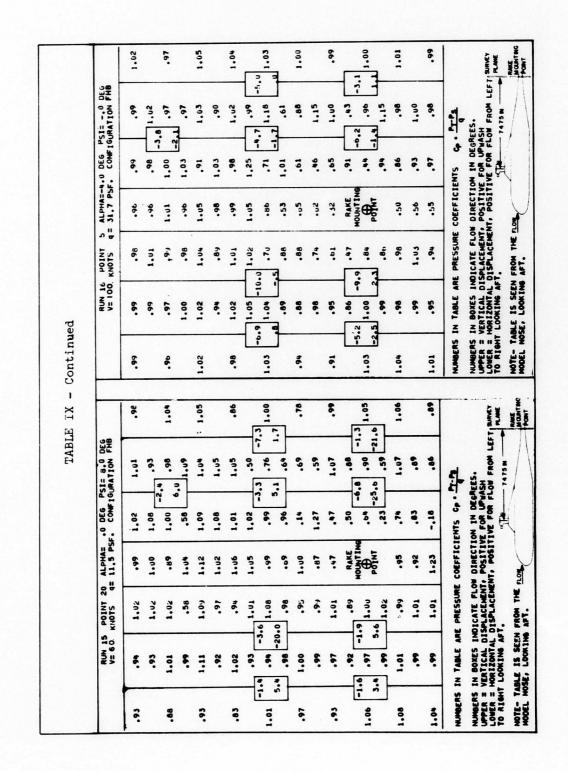
	RUN 15	POINT K10TS	10 ALPHA= 6.0 C	6.0 DEG P	DEG PSI=0 DEG	98		**************************************	POINT	11 ALPHA= .0	CONF	DE6 PSI=-8.0 DE	DEG FHB
	٤.	.87	54.	26.	69.	64.	66.	1.00	16.	16.	26.	1.04	1.02
	٤.	.87	š.	*.	*.			8.	.6.	1.0	8 .	1.09	
	57.	۶.	•	22.	2.	66.	8.	\$.	1.05	1.00	1.10	.6.	.92
	ş.	7.	70.	1.23	٠. ان			.8.	1.11	1.02	1.07	\$ 1.35	
	9.	•	£4.	٠٢.	۶.	% .	\$.	8.	66.	1.25	1.1	10.1	
	6.	26.	\$0.	69.	1.00			•	1.28	66.	1.05	%.	
	1.01	6	\$0.	.67	33:1	8.	1.02	76.	.32.	.92	1.01	.83	16.
Ľ	*	₹ .	3:	8 .	97.1	_ _[:	[86.	*.	98.	8.	1.03	_
,	99.	39. GP.	57.	.50	19.1	10.1	.79		- è	1.02	16.	1.04	16.
_	* *	·	86.	*.	21.1			ŧ	 	1.02	1.02	1.00	-5.7
	\$6.	6.	6.	56.	1.1	1.02	۲.	61.	.59	57.	8.	* .	5 .
	86.	-982	٠,	1,13	1.01		•	.55	3.	74.	56.	.92	
	%.	.24	.33	1.06	06.	1.00	.6.	69.	3	98.	6.	96.	66.
Ŀ	1.09	.; -[RAKE	*.	1.06	[.82	1.02	RAKE	8.	1.05	-{
1	.0.1	3.7 .8. 1.1.	Polo Ni Ni Ni	6. 6.	-3.0	5.5 5.3 98	1.01	-1.5	5.3 5.3	Point	\$. F	-1.1	8. s.
	8.	1.15	52.	.52	1.04	1.02	1.01	87.	.72	28.	8.	26.	.97
	1.03	1.0.1	. 30	S6.	1.00			1.22	76.	26.	\$,	76.	
	.97	6.	15.		1.02	. 92	4.	• 52	şč.	1.01	1.01	6.	.93
S	NUMBERS IN TABLE ARE		PRESSURE CUEFFICIENTS	ė	2.1.		NUMBERS	NUMBERS IN TABLE AR	E PRESSUR	ARE PRESSURE COEFFICIENTS	3	- 8-18- - 8-18-	
8 R	NUMBERS IN BOXES IN UPPER = VERTICAL DI LOWER = HORIZONTAL TO RIGHT LOCKING AF	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT: POSITIVE FOR UPAGH LOWER = HORIZONIAL DISPLACEMENT: POSITIVE FOR FLOW FPOM TO RIGHT LOWERIA AFT.	DICATE FLOW DIMECTION IN DEGREES. SPLACEMENT: POSITIVE FOR UPWASH DISPLACEMENT, POSITIVE FOR FLOW F	ON IN DEGI	REES.	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HONTZOUTHA, DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LONGING AFT.	ISPLACEMENT	OW DIRECTION TO POSITIVE	ON IN DEG	ASH LOW FPOM LE	LEFT SURVEY
25	NOTE- TABLE IS SEEN	ELI FROM THE FLOW	FLOW		,	MOUNTING	NOTE- TA	TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW	1		R AKE MOUNTING

	RUN 15 V= 60	POINT I	12 ALPHA=-8.	.B.U DEG	ALPHA=-8.0 DEG PSI=-4.0 DEG 11.5 PSF. CONFIGURATION FHB	PHB		RUN 15	POJUT KNOTS	13 ALPHA=-8.0 9= 11.5 PSF.		DEG PSI=-4.0 DEG	
96.	.92	1.02	67.	1.01	96.	1.60		1.00	.6.	86.	96.	86	66.
	1.00	6.	76.	1.00	10.1			.97	.9.	76.	ı		
.93	8.	6.	1.02	1.01	66.	1.03	••	6.	*6.	.92	9 -		96.
	8.	1.01	1.04	1.02	%.			6.	.97	86.	ş.	-5.7	
96.	* .	1.00	1.05	%.	68.	1.00	1.03	10.1	86.	1.00	. 67	90.1	1.05
	6.	6.	1.00	*6.	.92			.92	1.01	95.	1.02	96.	
.97	96.	06.	\$6.	1.02	1.06	6.	1.03	10.1	1.0c	*1.	1.06	08.	96.
Ľ	1.05	1.01	1.10	1.12	1.25	-		1.03	16.	16.		6	
8.	1.10	1.02	1.04	1.07	60.1	. 63	1.13	1.04	-11.1	1.06		. 6.	.5
	1.11	1.04	.45	86.	185.1	;}	<u>.</u>	1.00	-4.9 1.0b	1.01		4.3	-: †
1.24	.93	.6.	1.36	1.22	1.24	66.	1.03	.92	d	16.	1.26	1.03	1.04
	1.02	9.	98.	1,04	. 87			.76	36.	98.	<i>š</i> .	1.14	
.97	۲.	.72	£8.	•	69.	89.	96.	.62	.9.	98.	<i>š</i> .	26.	1.16
Ľ	1.03	%. 	RAKE	.78	1.03	_ -[:		.00	.65	RAKE	06.	**	
1.01	1.00 -21	1.00		.92	-3.5 1.08	10.1	1.10	3.		HOUNTING			16.0
١	19.	ě.		%	1 56.	_ {}		88.	***	MIO	1.08	-5.6 1.02	6.
1.05	.53	19.		60.	66.	6.	1.14		.19	74.	8.	.97	1.02
	. 65	÷.	•58	60.	76.			1.02	.37	.25	56.	%.	
.97	98.	18.	0*•	1.02	1.01	8.	1.04	.32	.55	98.	8.	6.	66.
UMBERS	NUMBERS IN TABLE ARI	E PRESSURI	E PRESSURE COEFFICIENTS	ENTS CP .	2	•	NUMBERS	NUMBERS IN TABLE AR	ARE PRESSURE COEFFICIENTS	COEFFICE		20	
PPER =	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASSH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW F "THE - 14TH CONTING AFT."	DICATE FLOSPLACEMENT	IDICATE FLOW DIRECTION IN DEGREES. SPLACEMENT, POSITIVE FOR UPASH OISPLACEMENT, POSITIVE FOR FLOW FROW LEFT PLANE TO TAKE THE PASH TO THE	ON IN DEC	ASH LOW FROM L	EFT PLANE	NUMBERS UPPER : LOWER :	WINNERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER : WERTICAL DISPLACEMENT, POSITIVE FOR UPJASH TO DREAT : ONLINE ACT DISPLACEMENT, POSITIVE FOR FLOW FROM	DICATE FLO	DW DIRECTI T. POSITIVE ENT. POSIT	ON IN DEGREES. E FOR UPWASH IVE FOR FLOW FR	EES. SH OW FROM LEF	LEFT SURVEY
OTE- T	VOTE- TABLE IS SEEN	FROM THE FLOW	FLOW	-		RAKE	MOTE - TA	TABLE 16 SEEN COOM THE ROW		ROW.			RANCE

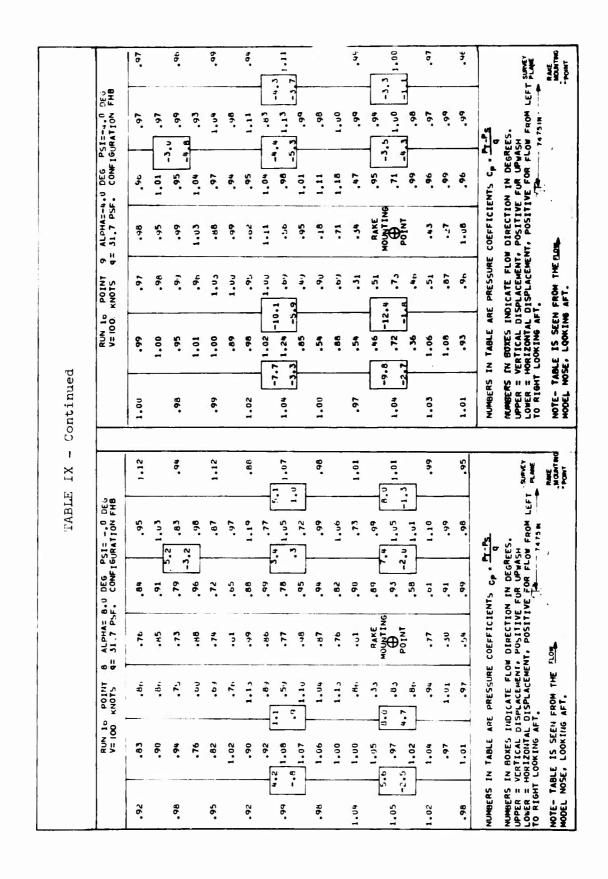
	MUN 15 V= 60	S POINT 14 KNOTS Q		CONFIG	ALPHA=-4.0 DEG PSI=-4.0 DEG 11.5 PSF. CONFIGURATION FHB	₽		KUN 15 V= 60	POINT KNOTS	15 ALPHAE 9= 11,5 PS	4.0 DEG	ALPHAE 4.0 DEG PSI=-4.0 DEG	. BB
.92	16.	1.00	85.	10.1	*6.	.69	.92	16.	1.05	56.	16.	18.	
	.91	.9°	96.	1.02	26.			.92	86.	98.	29.	ž.	
*	.93	.93	76.	.92	96.	86.	8.		.87		. 59	96.	1.01
	1.00	96•	1.05	1.00	6. 			8.		1.04	. 87.	1.1	
.97	66.	1.05	1.02	1.03	66.	1.04	.82	8.	36.	86.	18.	1.09	2.
	67.	1.07	66.	1.00	\$55			86.	۲.	87.	16.	1.0	
66.	• • •	1.02	1.49	1.31	.92	1.09	۶.	.55	1.04	1.08	1.03	1.24	3.
-[-	66.	1.15		86.	18.		L	ss.	1.04	1.02	26.	8.	4
16.	5.	1.07	58.	10.	66.	1.15	· ·	.78	4.4	05.	16.	9	2.0
	.,_] 68.	14.	.83	.87	66.	e]		9:	.4.2	1.11	.70	1	-5.3
.91	19.	• 66	94.	16.	1.02	1.04	1.02	\$6.	3.	1.10	.81	1.01	1.01
	66.	.67	50.	1.18	66.			89.	.7.	24.	ş.	8.	
06.	1.22	3.	20.	1.06	06.	86.	.86	8.	.7.	1.26	.84	1.00	76.
-[19.	"s.	RAKE	.95	16.		l	1.07	96.	RAKE	1.00	1.02	
1.09	66.	9.9-	ON THE	1.03	96.	-3.6	1.07	1.6	1.4 9.9	MOUNTING	74.	_	3.2
?	.89	24.	POINT	.28	96.			-3.7	4.6	Polnt	86		8.
1.05	66.	9.	£4.	86.	16.	76.	1.02	.53	10.	9.	.95	8.	*.
	1.02	50.	54.	6.	76.			3.	57	60.	۴۰.	1.01	
1.01	.89	79.	1.16	56.	96.	\$6.	1.00	69.	70.	ç	36.	1.00	16.
MBERS IN	UMBERS IN TABLE ARE	R PRESSURE	PRESSURE COEFFICIFNTS	PNTS G	. 9. 21. 21.		NUMBERS	NUMBERS IN TABLE	ARE PRESSURE COEFFICIENTS	E COEFFICIE		\$ - P 8	1
MBERS IN PER = VE WER = HO RIGHT L	NUMBERS IN BOXES IN UPPER = VERTICAL DI LOWER = HORIZOUTAL I TO RIGHT LOUKING AF	IDICATE FLO ISPLACENENI DISPLACEME	"UMBERS IN BOXES INDICATE FLOW DIPECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASSH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOWENG AFT.	IVE FOR FLO		LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOUKING AFT	WINNERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH TOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PUMPER.	T. POSITIVE	ON IN DEGR	EES. SH FROM LEF	T SURVEY
TE- TABL	NOTE - TABLE IS SEEN	PROM THE FLOW	FLOW			RACE	NOTE- TA	BLE 15 SE	NOTE- TABLE IS SEEN FROM THE FLOW	PLOS	1		RANE

	RUN 15 V= 60.	S POINT 16 KNOTS 9=	= 11.5 PSF.	10	DEG PSI= 4.0 DEG)E6		RUN 19	KNOTS	17 ALPHA=-4.0 DE6 q= 11.5 PSF. COM	4.0 DE6 F. CONFT	DEG PSI= 4.0 DEG	. £6
1.02	1.05	*6.	1.00	1.01	6.	90.	16.		96.	96.	8.	3.1	1.04
	6.	1.05	35.		1.12			1.00	66.	76.	<i>*</i> .	1.06	_
*6.	1.00	.9,	1.05	6.	96.	16.	.97	ŧ.	6.	1.00	1.02	1.02	
	.83	1.00	%.	86.	98.			*	1.03	16.	1.05	•	
.95		1.04	17:	98.	.79	1.06	<i>š</i> .	*	1.01	26.	1.06	\$6.	
	.86	1.01	92.	1.50	.58			1.07	9.	1.00	. ·	1.06	
1.00	8.	.99	70.	. 27.	15.	1.26	1.17	1.00	1.04	1.06	<i>\$</i> .	1.09	1.02
	1.09	*.	74.	88.	; _	-{		1.12	1.07	1.03	1.07	1.10	-[
1.01	1.03	1.01	65.	98.	1.00	9.	£6.	.9	8.	1.02	š.	16.	
	1.02	10.1	74.		65.	2.5] ie:	*:	.85		99. 	;}-
96.	1.02	16.	99.	99.	96.	%.	1.0	*.	1.07	.05	1.03	*	_
	1.08	6.	30.	.95	76.			5.1	.97	3.	٤.	. 85	
1.05	%.	.18	1.18	7.	. 92	1.03	9 .	8.	1.01	99:	.67	.82	
	.88	.7.	PAKE	.58	11.17	_ _[1.00	*2·	RAKE	£.	٥٠.	-[
1.13	1.00	.63	N N N N N N N N N N N N N N N N N N N	84.	-1.1	3.3	1.10	1.00	16.		9.	66.	1.02
_	1.05	.6.		2.	94.	2.		8.1	*. -		0.	3.	-
1.10	1.01	1.u.	37.	04.	55.	1.06	1.02	1.02	6.	95.	1.16	.92	
	.97	1.0.	*	.56	ç,			1.0	1.01	08.	8.		_
66.	· •	*6.	9.	99.	84.	1.00	1.00	1.00	1.01	35.	1.13	1.02	
MBERS	NUMBERS IN TABLE ARE		PRESCURE COEFFICIENTS Cp : PL-PS	NTS Cp : P	2 - J -		NUMBERS	IN TABLE	ARE PRESSURE	E COEFFICIENTS Cp . Pt -PS	ENTS Cp .	2 - P	
PER =	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGRES. UPPER = VENTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = WORIZOWITA DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	DICATE FLON	POSITIVE VI, POSITI	FOR UPWA	EES. SH FROM LE	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES VERTICAL (HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	OW DIRECTION FOSTIVE	ON IN DEG	ASH LOW FROM	LEFT SURVEY
TE- T	NOTE- TABLE 15 SEEN	FROM THE FLOW	10			RANCE	NOTE- T	ABLE 15 SEL	TABLE IS SEEN FROM THE FLOW	200	7	,	RAKE MOUNTING





	RUN 16 V= 100	POINT KNOTS	6 ALPHA=		DEG PSI=0 DE	DEG FWB	-	RUN 16	L KNOTS 4	ALPHA=	٠.	DEG PSI= -,0 DEG	
66.	1.02	1.04	90.	86.	96.	1.06	86.	86.	1.03	8.	90.	06.	66.
	1.00	1.01	ą.	1.07	1.13		,	1.03	96.	.89	76.	1.06	
96.	6.	36.	1.03	1.08	0 (16.	.76	86.	.69	.87	66.	6.	.92
	1.02	1.02	16.	***	24.1			88.	6.	18:	*	: :	•
1.05	1.00	1.03	1.45	10.1	g.	1.09	%	ξ.	69.	09.	16.	8.	1.1
		∙8.	34.	.91	1.21			1.03	69.	999	. 79	1.18	•
.87	86.	1.03	٥,	%.	74.	. 07	.90	.73	.62	.53	1.19	*8.	* .
Ū	1.00	•. -[.87	3 .	ş. _[<u></u>		.77	 -!	.87	96.	6.	_[
1.00	96.	97.	6 0	**	1.24	50.1	3.05	. 80	-1.7	.67	.78	1.17	1.03
	.87	; ; ;	58.	.29	*; *;	?]	.	5 .96.	1.3 .Se	.47	.81	.8.	•
76.	.86	1.13	.76	65.	83.	86	86.	1.02	.67	0.70	.81	96.	86.
	1.02	*6.	٤٠.	*6.	35.			80	.63	70.	\$9.	1,05	
66.	06.	.8.	÷	14.	3.	1.06	66.	1.16	.74	64.	.78	1.02	1.00
L	1.01	-[:	RAKE	1.11	*. [96.	.87	ZAKE	10.1	1.00	_[
1.04	.95	-3.7		.32	-1.8	86.	1.03		2.0	ADINITING.		96.	3.5
	68.	1.0	N I O	99.	98.	r:]		-2.1	3.0	Point	.8.	_	1.8
1.01	1.06	n6.	i.	1.01	1.05	1.61	1.03	66.	.63	\$5.	\$9.	66.	66.
	.93	76.	50.	.58	1.01			16.	96.	.62	.75	66.	
1.00	1.00	1.01	.57	8*.	1.04	76.	66.	66.	#6.	10	98	1.00	*6.
NUMBERS	IN TABLE	ARE PRESSURE COEFF	E COEFFICIE	ICIENTS CP .	2-1-8			37000	ME THE SOUR	1	4 y 2	4	
JPPER =	NUMBERS IN BOXES INDICATE FLOW DIPECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR DWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM LIFE	IDICATE FLISPLACEMEN	OW DIRECTIC T. POSITIVE ENT. POSITI	CTION IN DEGREES. TIVE FOR UPWASH SITIVE FOR FLOW F	FEES. SH FROM LE	A SIMME	UPPER TO KIG	MOPER = VERTICAL DISPLOMER = HORIZONTAL DISPLOMER = HORIZONTAL DI	MOLANE FLA 1SPLACE FRI DISPLACE WE FT.	IN BURES INGLESS. VERTICAL DISPLACE-ENT. POSITIVE FOR UPWASH HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM 7 LOOKING AFT.	FUR UPWAS	ב ב	1 SURVEY
TO KIGH	T LOCKING A	11		¢	7475 IN		NOTE-	TABLE 15 SEEN FROM THE FLOW	II FROM 1HE	HOM			R AKE MOUNTING
NOTE - T	TABLE IS SEEN FROM THE	HEROM THE	PLON.		ı	MOUNTING	MODEL	NOSE, LOOKIN	S AFT.				POINT



-2.0		XCN 16	FOINT 10	ALPMA: .0 = 31,7 PSF.		CONFIGURATION F	DEG FHB
-5.6	<u> </u>	1.00	86.	18.	1.07	8.	8.
-5.6		56.	<i>3</i> .	1.06	8.	1.13	
1.05 1.05 1.01 1.05 1.01 1.06 1.03 1.03 1.03 1.03 1.03 1.00 1.00 1.01 1.01		1.02	.91	ç.	1.09	19.	66.
.93 1.15 1.06 1.79 .96 .96 .96 .96 .96 .96 .96 .96 .99 1.01 1.02 1.32 1.32 1.32 1.32 1.32 1.32 1.32 1.00 1.01 1.07 1.01 1.00 1.00 1.00 1.00		1.05	6.	*	- •	•! 	
-5.6		.85	9.	56.	1.03	3.	. 43
-5.6		1.02	1.01	8.	.87	1.24	
-2.0 .71 .52 .00 1.07 1.01 .10 .10 .10 .10 .10 .10 .10 .10 .1		66.	96.	56.	1.27	.80	1.21
-2.0 .71 -5.2 .496 .77 -1 1.06 -3.2 .96 .90 .97 .94 .95 .96 .90 .97 .94 .96 .90 .97 .94 .95 .96 .90 .97 .97 .96 .90 .97 .96 .90 .97 .97 .96 .90 .97 .97 .98 .99 .97 .97 .98 .99 .97 .90 .99 .90 .99 .90 .90 .90 .90 .90 .90		1.03	., .,	.87		7.15	⊣ [
-2.0	.	.42	60.	1.05	86.	.43	
-4.6 -3.9 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0		3.5	₹1.	2	*.	9,1	<u>;</u>
-2.2 .86 .4.9 .97 1.030397030303030303030		.85	٠,٠	.52	se.	66.	1.03
-2.2 1.02 1.07 1.00 -2.0 1.07 1.00 -2.0 1.03 1.00 -4.6 1.00 1.01 1.00 -3.6 1.00 -1.0 1.00 -3.6 1.00 -3.6 1.00 -3.6 1.00 -3.6 1.00 -3.6 1.00 1.03 1.00 1.00 1.03 1.00 1.00 1.00		•55	.67	.78	€.	œ.	
-4.6 -3.9 -3.9 RAKE -4.0 -2.0 1.07 -3 1.00 -4.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3		.87	&	*0.	9.	1.06	
-2.5 1.02 -3.4 71 PO[NT 1.06 -5.6 1.03 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 -5.6 3.4 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.		1.00	**	RAKE	۶. ۲	20.1	<u> </u>
.31 .40 .80 1.03 1.00 .96 .96 .96 .96 .96 .96 .96 .96 .96 .96	1.03	06.	-	⊕ v v	8	.98	1.00
. 66 . 69 . 69 . 99 . 99 . 96 . 96 . 98 . 98] • •	\$. }_		;	0,	-
1.00 96.		6.	(3.	67.1	1.24	6.	, ,
96.		6.	٠,٠	ž.	. 97	96.	
4.1		. 62		\$2.	1.02	6 .	•
_	NUMBERS	NUMBERS IN TABLE AR	ARE PRESSURE COEFFICIENTS Cp :-	COEFFICE	ENTS CP .	£ .	
S. UPPER UPPER UPPER TO NE	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. LOWPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SUNKY TO RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEMENT	W DIRECT!	ION IN DEG	REES. ASH LOW FROM LI	FT PLANE
ROM THE BOW. NOTE.	NOTE-	TABLE 15 SEEN FROM THE FLOW NOSE, LOOKING AFT.	FROM THE	107		!	RAME MOUNTING

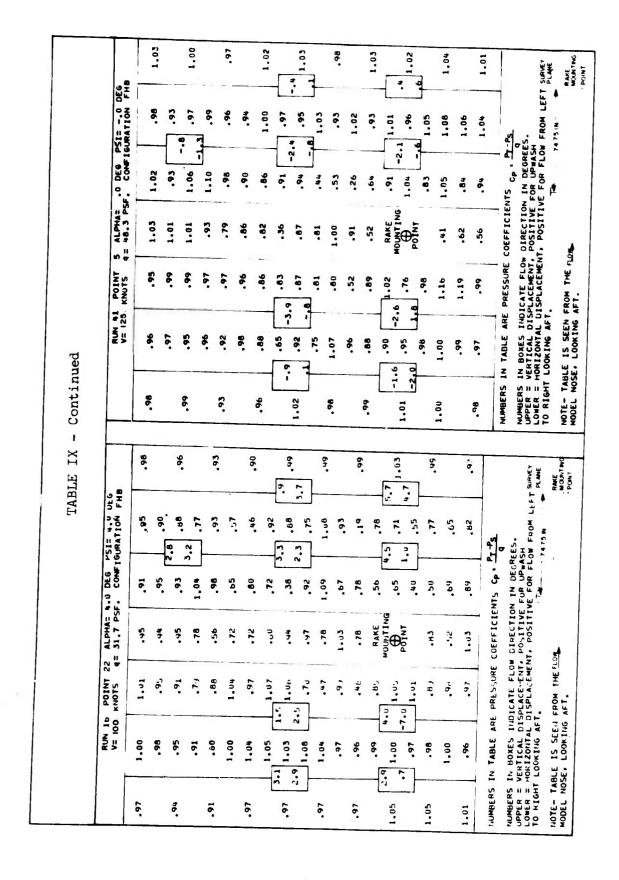
	NON TO	HUN 16 POINT 12	2 ALPHA= .	U DEG CONFI	DEG PSI=-4.0 DEG			RUN 16 V= 100	POINT 1	ALPHA=	٠.	DEG PSI=-4.0 DEG	
96.	.97	e .	65.	1.00	96.	\$6.	.95	96.	1.08	37.	8.	1.02	1.02
	76.	₹.	66.	٠ <u>٤</u>	.°. ∏			1.00	.87	1.02	1.06	- 1	
1.00	%.	.6.	96.	60.	1.01	66.	66.	98.	1.Ur	.75	76.	1,13	1.08
	.93	.93	1.03	1,03	 .%			1.04	.84	1.28		-5.2	
76.	1.02	1.04	09.	06.	.97	.85	69.	٤.	76.	60.	.75	1.08	.93
	.93	16.	77.	1,08	88.			98.	. d.	68.	1,13	66.	
96.	68.	9.	90.	95	1.14	.93	.95	82.	40.	1.18	.93	6.	66.
	٠٠.	1.00	1.14	8.	%. 	 [-	7	.83	.ş.	.72	.93	1.05	
8	69.	.5.	76.	6.	*6.	96.	\$6.	.61	رق.	6*	56.	06.	3.8
<u>. </u>		.2.	86.	•	2.01	-	°.	.56	-5.7	.63	<u>"</u> *.	-5.7	•]
8.	67.	.87	98.	1,03	89.	1.00	.95	*	36.	80	69.	1.04	.95
	.55	.50	08.	96.	\$6.			.93		1.12	1,20	1.00	
.93	99.	.7.		.10	1.03	56.	90.	1.06	.50	65.	*9.	5 .	1.01
<u> </u>	9	[RAKE	1.09	اً چ ا	 [.70	3.	RAKE		1.00	
1.05		-2.5 1.0h	M M M M M M M M M M M M M M M M M M M		8	96. 5.1.	1.04 3.7	76.	1.9 5.0	Point Ind	8.	. 2.	1.0
1.02	\$ 8	-	1.06] :				\$. \$. 		- August	6. 8	2. T	*
	1.01	•	. 95	ş.	3.			%	.74	66.	86.	16.	
1.00	57.		.53	8.	\$.	š.	.97	.82	10.	.82	.95	1.02	*
NUMBERS	IN TABLE A	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP . Pr.P.	COEFFICI	ENTS Cp . P	1		NUMBERS	NUMBERS IN TABLE AR	E PRESSURE	ARE PRESSURE COEFFICIENTS GP		4	
NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES I VERTICAL E HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT, POSITIVE FOR FLOW TO RIGHT LOWING AFT	T. POSITIVE	ON IN DECK	FROM	LEFT NAMEY	UPPER = 1	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO BEART I ONE THE ART	DICATE FLO SPLACEMENT DISPLACEMENT	DW DIRECTION TO POSITION POSITION	DIRECTION IN DEGREES POSITIVE FOR UPWASH POSITIVE FOR FLOW	F 80	LEF II SURVEY
NOTE- TA	BLE 15 SEE	NOTE- TABLE 15 SEEN FROM THE ROW-	104			PASSET SEC	NOTE - TAL	TABLE 15 SEEN	FROM THE PLONE	Pior	Ħ,	7475#	PARKE MOUNTING

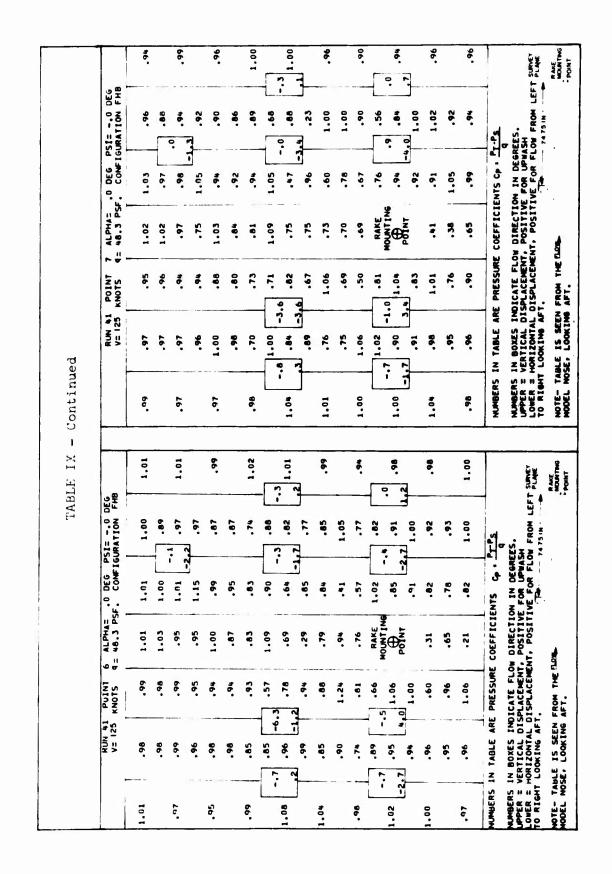
	RUN 16 P	OINT	14 ALPHA= 4.0 q= 31.7 PSF.		DEG PSI=+.0 DE	DEG FHB		RUN 16 V= 100.	POINT !		ALPHA= 4.0 DEG PSI=-4.0 DEG 31.7 PSF. CONFIGURATION FHB	SI=-4.0 DE	9.
	%	16.	1.00	56.	86.	76.	6.	.93	*6.	.83	ě.	40.	86.
	.95	1.01	6.	ı				1.07	96.	.65.		*. —["-	
	06.	.9.	5.	8.	6.1	96.	\$6.	96.	26.	. 66.	66.	96.	98.
	89.	9.	.82	.87	٠. و.			8.	46.	.78		19:7 	
	.78	.84	68.	11.11	.92	66.	.81	ţ,	06.	1.06	1.28	11.	1,010
		.79	.79	*8.	76.			.63	.53	.82	936	1.05	
	.32	åŠ.	St.	96.	1.09	56.	68.	69.	· 6;	1.09	.95	96.	5.
13.8	.93		55.	1.01	%.			%. 4:	74.	50.	7.00	, e.	9.4
1.8	.88		ð.	- 1	1.05	3.8	1.07	8.		60.	3 . 3	1,01	1.01
	*: ·:	£ 5	¥. %	۲. ه. آ	81.1		· ••	厂 ※・ 二	ĕ ₹.	. °.	, 		ş.
8 8 4	6.	.97	. 35	.38	96.			*6.	26.	.42	65.	96.	
	.86	٠,٩٠	57.	.95	86.	2 .	1.00	16.	.84	*7.	.92	.92	65.
•	1.23	۴.	RAKE	05.	*8.			1.02	.e.	RAKE		3.1 .92	-{°.
	54.	2.8.	⊕o Ini	11.11	1,01	-2.3		% %	÷ ;	⊕ol Iv	.97	10.1	1.01
		ř.	Ft.	86.	76.	66.	1.02	·	.83	85.	1.00	96.	85.
	.72	96.	95.	*6.	1,02			.82	.71	68.	95	86.	
	.70	۰6.	.80	1.00	66.	%.	66.	.83	.83	12.	%.	76.	
Z	NUMBERS IN TABLE ARE	1	PRESSURE COEFFICIENTS		Sp . 43		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	E PRESSURE	COEFFICI	٠	P1-P5	
Z # 5 -	NUMBERS IN BOXES 14D1 UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	DICATE F SPLACEME DISPLACE	CATE FLOW DIRECTION IN DECREES. LACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR FLOW FROM LEFT PLAKE SPLACEMENT, POSITIVE FOR TATASH	ON IN DEGR	EES. SH OW FROM LE	EFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HONIZOHIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LONGING AFT.	DICATE FLO SPLACEMENT DISPLACEME T.	OW DIRECTION FOR POSITION POSITION	ON IN DEGR	LEES. ASH OW FROM L	LEFT SURVEY
P	NOTE- TABLE IS SEEN	FROM THE	TE FLOW			RAKE	NOTE - TA	TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW			RAKE

	KUN 16 V= 100	POINT KNOTS	16 ALPHA=-4.0 q= 31.7 PSF.	4.U DEG PS	DEG PSI= 4.0 DEG			RUN 16 V= 100.	POINT 1	17 ALPHA= .	9	DEG PSI= 4.0 DEG	€ د
86.	96.	96.	ap.	76.	46.	96.	86.	96.	8.	1.00	16.	96.	24.
	6.	.98	1.00	*.	*. [0			86.	.97	1.00	ş.	٠.	
1.01	1.02	1.00	56.	.91	76.	86.	1.01	1.02	1.03	95.	98.	1.00	1.02
	96.	.97	1.01	.] 46.	٤.			8.	.89	1.04	1.03	٤.	
.95	1.00	96.	85.	.97	96.	06.	99.	8.	.97	\$6.	11.11	\$6.	. 89
	1.03	1.05	87.	69.	66.			1.09	1.07	76.	₩.	96.	
66.	6.	1.1	1.04	10.1	.91	1.03	.90	1.09	1.24	1.02	%.	.76	1.03
U	*. —[:	·.	66.	*.	1.01			.93	ئ	98.	.50	86.	⊣ "
1.05	16.	1.00	3.	. 75	\$6.	1.00	8.	8.	1.01	70.	.69	.82	94.
_	1.07	1:1	76.	, ş	-4.				; •:	80.	65.		;]
1.04	\$6.	1.03	57.	.55	76.	96.	1.01	6.	۰,	1.02	₹.	7.	\$6.
	6.	1.08	.63	.72	2.			\$.	.87	1.17	ες.	.82	
10.1	1.04	÷.	.85	•29	.38	\$6.	%	*	ć.	.50	• 50	.50	.92
L	%	٠٠. -آ	RAKE		.50			1.03	<i>*</i> .	RAKE	ş.	ž.	4
1.05	.89	1.10	₹ •	3.	66.	8.	1.02	86.	-3.5	NO THE	8.	68.	26.
	1.02	÷.		89.	.67	•]			2.5	z Io	1.03	*;	2.5
1.04	1.05	76.	£0.	s*.	80.	1.00	1.01	6.	1,01	ş.	1,29	1.04	*
	1.01	1.03	.31	. 85	\$6.			ę.	.97		.30	1.02	
1.00	1.00	.97	.50	.51	. 68	56.	1.00	96.	1.02	1.23	.32	.70	*6.
UMBERS	NUMBERS IN TABLE ARE		COEFFICI	PRESSURE COEFFICIENTS Cp . PT.PS	1		NUMBERS	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP. P.	RE PRESSURE	COEFFICIE	ENTS Cp . P	4,	
PPER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	NOICATE FLO	POSITIVE NT. POSITIVE	ICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR FLOW FROM LEFT SUMEY SPLACEMENT, POSITIVE FOR THE PARKET 13-11-11-11-11-11-11-11-11-11-11-11-11-1	ES. H FROM LEF	SURVEY	UPPER =	WAMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. JPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH COBER = HORIZONYAL DISPLACEMENT, POSITIVE FOR FLOW FROM	NDICATE FLO	T. POSITIVE	E FOR UPWA	F OF	LEFT SURVEY
7E- 1	NOTE - TABLE IS SEEN	H FROM THE FLOW	10	•		PAKE	NOTE - T	TABLE IS SEE	IS SEEN FROM THE FLOW	FLOW	4		RAKE MOUNTING

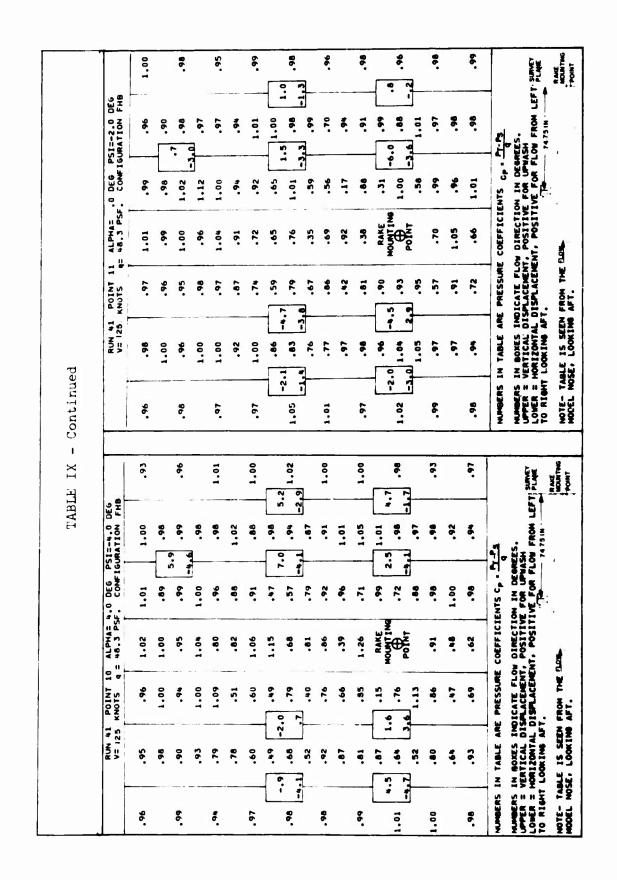
	RUN 16 V= 100.	POINT KNOTS	18 ALPHAE	CONF	DEG PSI= 4.0 DEG			RUN 16 V= 100.	POINT 1	19 ALPHA=	10	DEG PSI= 4.0 D	DE G FHB
96.	86.	1.02	15.	36.	16.	16.	66.	16.	1.00	*	66.	96.	86.
	.97	٠6.	5 .	•	%.			6.	ě.	87.	\$. [آ پ	
*6.	1.00	ę.	1.00	8.	00.1	3 .	96.	1.00	.97	1.00	. 6.	-1.4	.95
	1.06	1.03	1.01	20.1	%. :}-			1.02	.97	*6.	*.	00.1	
1.05	1.00	1.02	96.	87.	11.	8.	69.	1.01	26.	97.	1.04	06.	96.
	.92	.8.	3.	1.02	1.11			1.02	1.01	76.	.93	.67	
.90	.97	1.Uc	1.05	1.03	47.	1.18	86.	%.	16.	894.	57.	06.	10.1
	••. -[-	÷ -[]	.83	.57	28.		نا	1.04	€.	86.	•	1.00	\dashv
1.06	1.02	÷.	64.	8	.79	26.	65.	£.	66.	60.	r.	98.	. 93
_	96.	*. 	64.	; <u> </u>	_, .,	 :]-		7.05	٤.	65.	28.	06.	•
96.	* .	. A3	74.	89.	å.	8.	1.03	1.00	.9.	1.01	65.	1.01	96.
	06.	٠6.	87.	.53	٤٢.			1.01	* 6.	70.	10.	.87	
10.1	86.	*	37.	22.	95.	56.	1.01	86.	ć.	7.	.79	96.	3.
	7.05	₹. —[:	RAKE	₹.	ء. آ			1.01	1.00	RAKE	3.	ş.	4
1.03	.6.	5.5	e Polo	.79	.92	-1.3	1.03	1.01	2.0	O O	°.	50.	3
_	1.00	₹. }-		*9.	1.17	7	_	, ; }	<i>š</i> .		10.	*6.	7
1.03	.97	1.05	36.	00.	11.	96.	1.03	.97	1.00	33.	89.	5	10.
	1.00	1.00	54.	9.	.92			96.	.6.	60.	٠6.	96.	
1.01	1.01	1.00	.87	.58	99.	* 6.	1.01	16.	1.00	54.	=	s.	. 63
UMBER	NUMBERS IN TABLE ARE		COEFFICIE	PRESSURE COEFFICIENTS C. PTPS	٠ <u>١</u> .		NUMBERS	IN TABLE	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP "	E COEFFICIE	NTS CP . P	7. P.	
UMBER: PPER: OWER: 0 RIGH	NUMBERS IN HOXES INDICATE FLOW DIRECTION IN DEGREES UPPER = VERTITAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW TO RIGHT LOWENTS ATT.	IDICATE FLO ISPLACEMENT DISPLACEME	N DIRECTIC T. POSITIVE INT. POSITI	CATE FLOW DIRECTION IN DEGREES. PLACEMENT POSITIVE FOR PLACE THE TATS IN THE T	ES. SH PROM LEF 7475 IN	FT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDI- UPPER = VENTICAL DISP- LOWER = HORIZOHTAL DI- TO RIGHT LOCKING AFT.	NUMBERS IN BOXES INDICATE FLOW DIMECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASH LOWER = HORIZOHIAL DISPLACEMENT, POSITIVE FOR FLOW FOOM LEFT SUNKY TO RIGHT LOWENG AFT.	OW DIMECTIC T. POSITIVE ENT. POSITI	ON IN DESR	SH FROM LE	FT SURVEY
NOTE - TABLE IS SEEN	NOTE - TABLE IS SEEN	FROM THE	FLOW.			R AKE MOUNTENG	NOTE- TA	NOTE- TABLE IS SEEN	FROM THE	300			RAKE

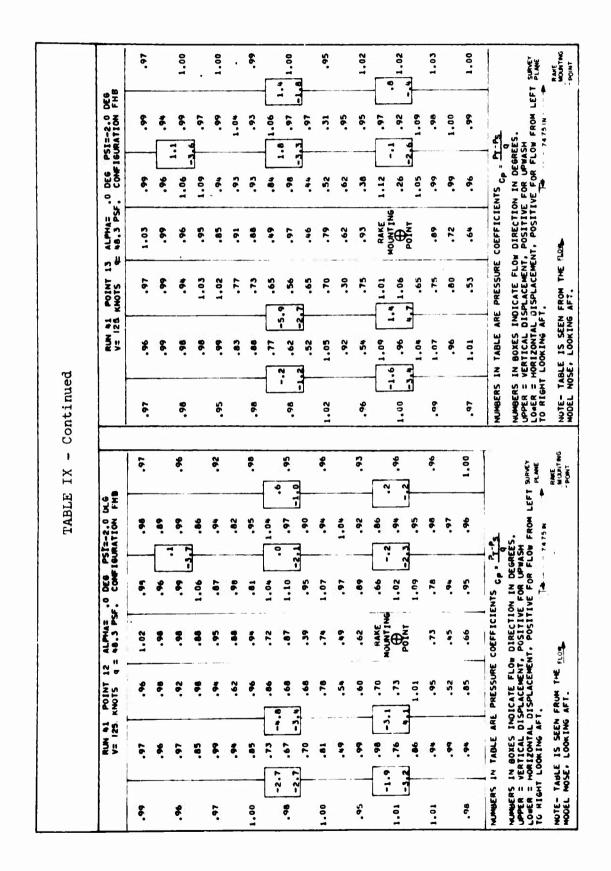
	RUN 15	FOINT KNOTS	ALPHA:	١,	DEG PSI= 4.0 DE	DE'S F N B		RUN 15	POINT 2	1 ALPHA= 4.0 q= 31.7 PSF.		DEG PSI= 4.0 DEG	
1,00	1.02	1.07	97.	56.	1.02	1.47	76.	76.	36.	87	1,00	66.	.63
	1.00	1.u.	1.04	1.05	٠,٠٠			96.	1.04	97.	t	1.03	
.97	.95	ŏ.	1.05	1.08		16.	.87	. 80	6.	1.09	7.		.82
	1.01	1.0.1	1.25	_	6n.1			66.	6.	. 41	36.	1.3	
ě.	.93	ž.	1.,2	1.03	57.	5.	·92	5.	.9.	16.	.70	.91	ě.
	66.	6.	74.	S#.	.85			.,	76.	. 79	.9	08.	
96.	66.	76°	1.04	. 38	50.	1.61	<i>š</i> .	.95	1.04	•24	90.	.55	1.64
L.	1.01	71:1	32.	89.	26.	— —[:		. 76.	*·	2	٤.	.92	
.97	1.00	ğ,	1.11	*6.	79.	65.	1.02	1.01	1.9	86.	. 8.	1.17	20.1
	* * -		. 46	.57		<u> </u>		* *	76.	.81	89.		3.7
96.	66.	14.	7.	65.	66.	96.	.97	1.07		9	.79	67.	36.
,	1.04	.6.	.76	1.04	.8.			96.	98.	.80	16.	.75	
66.	. 85	1.1,	34.	\$9.	.33	1.07	.97	1.02	9.	17.	1,22	94.	.95
	1.07	1.03	RAKE	۶ و. آ	1.04			1.0	1.09	RAKE	.53	88.	<i>.</i> —
1.04	1.1	36°	Φg		90.1	56.	1.05	.97	1.07	MOUNTING H	62.	1.11	
<u> </u>	•	·.		*.	 	-		7 20.1	%	Z D	.78	٠, و	ĵ.
1.01	.92	1.01	.93	. 47	*9.	86.	1.04	86.	1.05	1.03	\$6.	.82	1.01
	1.01	.98	. 85	.70	**.			1.01	96.	.42	*	£.	
66.	1.01	10.1	1.13	*9.	\$6.	.95	66.	1.01	66.	.53	99.	.92	96.
NUMBERS	IN TABLE	NUMBERS IN TABLE ARE PRESSURE COEFF	COEFFICIE	ICIENTS Cp . !	2		NUMBERS	IN TABLE A	ARE PRESSURE	COEFFICIENTS	INTS Co . P.	5	
NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES HADS UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	NUMBERS IN BOXES HADICATE FLOW DIRE UPPER = VERTICAL DISPLACEMENT, POSI LOWER = HORIZONTAL DISPLACEMENT, PO RIGHT LOOKING AFT.	W DIRECTION POSITIVE INT. POSITIVE	CTION IN DEGREES. TIVE FOR UPWASH SITIVE FOR FLOW F	CTION IN DEGREES. TIVE FOR UPWASH SITIVE FOR FLOW FROM LEFT SURVEY	A STREET	UPPER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISPI LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	WUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZOWING AFT TO RIGHT LOOKING AFT	W DIRECTION POSITIVE NT. POSITI	DIRECTION IN DEGREES POSITIVE FOR UPWASH POSITIVE FOR FLOW	100	LEFT SURVEY
NOTE- TA	BLE 15 SEI	NOTE- TABLE IS SEEN FROM THE FLOW MODEL NOSE, LOOKING AFT.	· Jou	•		RAKE WOUNTHO	NOTE - 1/	TABLE 15 SEEN	IS SEEN FROM THE FLOW.	LON	! : .	.	RANCE MOUNTING
						No.							PONT.



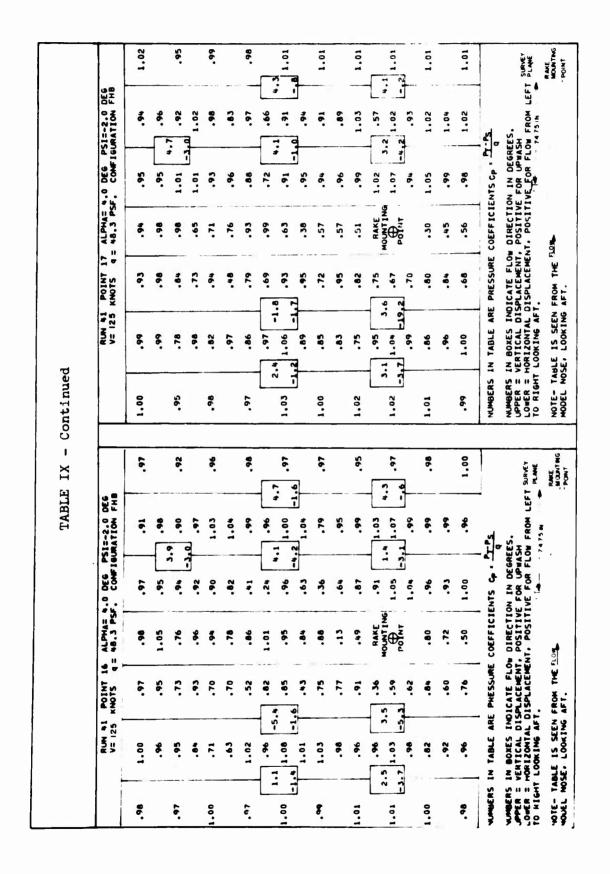


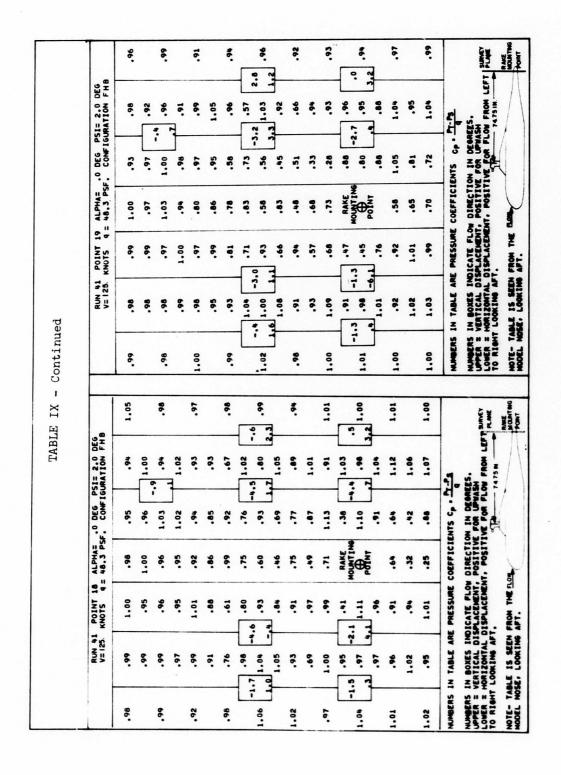
	RUN 41 V= 125	POINT	8 ALPHA= 4.0	F. CONFIG	DEG PSI=0 DEG CONFIGURATION FHB			RUN 41	POINT	9 ALPHA= 4.0 DEG 9= 48.3 PSF. COM	4.0 DEG P	DEG PSI=0 DEG CONFIGURATION FHB	9 H
86.	\$.	%.	1.02	1.03	8.	99.	6.	*.	1.00	96.	\$.	1.01	
	*	8.	8.	.93	*.			96.	8.	8.	.93	\$. 	
. 16.	66.	.92	8.	. 36.	3.0	%.	.92	%.	66.	.92	. 6.	96.	.93
	.87	1.12	.93	*·	1:01			89.	99.	.93	8.	10:	
.64	1.03		\$9.	.77	.92	1.06	96.	.83	.72	06.	.63	%	.95
	.92	.87	.75	.75			<u>.</u> .	.93	1.09	10.	.83	.91	
76.	%.	.76	64.	**.	.56	8.	. 4	1.01	.83		.62	1.00	1.00
Ľ	10.1	1.04	.64	3.	96.		L 	.97	; -[99.	1.08	11.04	√ ,
1.00	04.	.71	*9.	96.	1.00		1.01	.71	1.04	99.	*	3.2	66.
י	%.	رد. دد.	8.	1.0.1	*.		<u>.</u>	*6.	99.	.91	1.08	.37	7
1.01	1.02	.78	.27	1.06	%	<i>*</i> .	8.	%.	1.08	9.	1.03	ě	1.01
	1.03	<i></i>	.35	. 55	.91			88.	1.02	.82	96.	.93	
.97	1.13	.78	.68	.33	1.03	96.	96.	1.04	.97	99.	.53	.62	1.00
Ľ	1.04	14.	RAKE	-85	1.06			1.00	96.	RAKE	. 86.	1.03	[•
1.00	96.	3.2		1.21	60.	96.	1.01	99.	1.3		98.	3.4	56.
פֿ	ار الاركان الاركان	79.	LNIO	96.	_ %. 	<u></u>	<u>J</u>	1.00	69.	POINT	34.	1.02	,
86.	1.00	.63	.39	.67	96.	%.	1.00	96.	.80	.63	96.	.96	1
	1.02	1.02	.35	.83	.95			8.	.97	0 3	1.00	96.	
.97	1.04	£.	54.	1.00	96.	96.	96.	86.	1.01	85.	.7.	1.00	5.
UMBERS	AMBERS IN TABLE ARE PRESSURE COEF	I RE PHESSURE	I I COEFFICIENTS	j	14°		NUMBERS	IN TABLE	ARE PRESSURE	I I I I I I I I I I I I I I I I I I I	د	Pr-Ps	-
PPER =	WHEES IN BOXES INDICATE FLOW DIR JPPER = VERTICAL DISPLACEMENT, POS TOWER = HORIZONTAL DISPLACEMENT, PI TO RIGHT LOOKING AFT,	VOICATE FLO ISPLACEMENT DISPLACEME	W DIRECTION POSITIVE	ECTION IN DEGREES. ITIVE FOR UPWASH OSITIVE FOR FLOW FROM	Ş i	LEFT SUP.	NUMBERS UPPER = LOWER =		IN BOXES INDICATE FLOW DIRECTION IN DEGREES. VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZONALD DISPLACEMENT, POSITIVE FOR FROW I LOOKING AFT.	-OW DIRECTI 4T, POSITIV FENT, POSITI	ION IN DEGI		LEFT SURET
NOTE - TA	NOTE - TABLE IS SEEN FROM THE FLOW	FROM THE	107			PARE MOJETRIG	NOTE - T	TABLE 15 SEE	IS SEEN FROM THE FLOT	FLOW			RAKE MOJV. NO

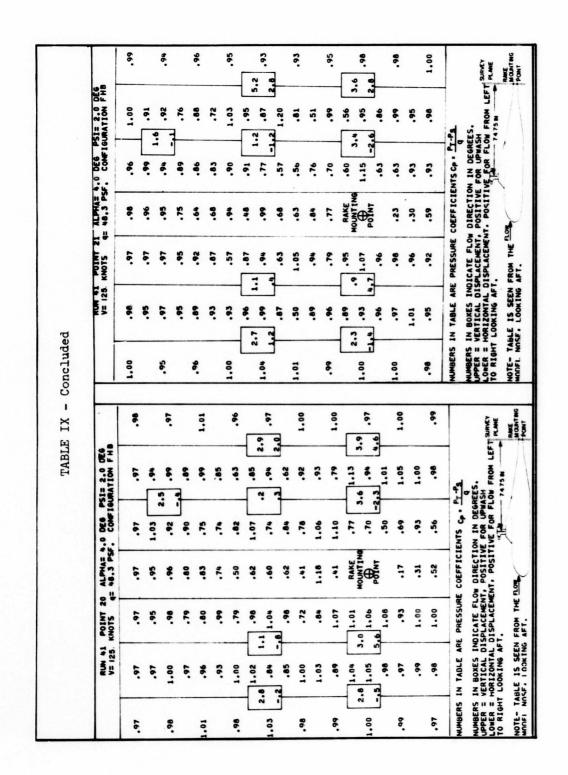




	RUN 41	POINT 14	4 ALPHA=	0	DEG PSIS-2.0 DEG			RUN #1 V= 125	POINT 15	ALPHA= 4	۰.	DEG PSI=-2.0 DEG CONFIGURATION FHB	, a
00.1	86.	1.02	1.00	1.00	8.	.97	8.	66.	1.00	66.	6.	6.	86.
	8.	86.	1.00	6	· 6.			26.	96.	1.00	36.	.	
96.	8.	1.01	å.	1.03		%.	1.00	.97	.92	8.	<i>*</i>	*6.	.93
	8.	66.	8.	1.08	7_			.61	96.	1.02	£.	Se.	
66.	8.	.93	68.	96.	1.00	%	.97	90.	.91	.70	*0.	76.	96.
	1.05	.87	.87	.92	.67		_	09.	.62	18.	06.	.97	
10.1	08.	.67	.76	.92	8.	6.	86.	96.	6	.80	*0	76.	66.
_	10.	1.51	• 56	.37	8.		L.	1.11	28.	97.	.00	1.00	
1.03		. 3.4 . 70	9.		46. 8.	1.01	* 1	1.12		99.			\$. •
			1.10	•	š.		6	S .	. 52	9. ;	. 51		
1.03	6.	ş.	6	. 32	1.0	\$.	:		•	:	6.		•
	1.06	.	*5.	.61				2.	10.1	2.		۶. -	
8	1.13	6.	. 97	.71	1.00	1.01	1.04	¥.	.92	.33	.29	1.08	1.00
L	11.01	96.	RAKE	. 82	01.1			1.02	; [;	RAKE	.60	26.	Ţ.
.0.	1.05		<u>₹</u>	69.	1.00	1.00	1.02	1.05	00.	Φ,		96.	1.04
ני	86.	.50	POINT		.] 0:1]	1.06	-		§.	*.	
1.30	1.01	.65	35.	.	\$.	1.01	1.00	8	.75	**	66.	8.	1.00
	1.00		1.09	96.	96.			16.	.61	. *2	96.	1.01	
8	.6.	.76	.33		8	1.00	8.	6.	99.	.52	1.00	96.	1.01
MERS	NUMBERS IN TABLE ARE PRESSURE COEFF	L E PRESSURI	I I E COEFFICIENTS	3	2 - 2		NUMBERS	IN TABLE ARE	E PRESSURE	E COEFFICIENTS	ENTS CP = P	1.1.	
PER :	WAMBERS IN BOXES INDICATE FLOW DIRE. LOWER = VENTICAL DISPLACEMENT, POSI LOWER = HOWELZOWIAL DISPLACEMENT, PO	OICATE FLOSPLACEMENT	OW DIRECTION T. POSITIENT	CTION IN DEGREES TIVE FOR UPHASH	FROM	LEFT, SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES INDICATE FLOW DIRECTION IN DEGREES VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW TOOMING AFT.	DICATE FLE ISPLACEMENT DISPLACEMENT	DW DIRECTIC T. POSITIVE ENT. POSITI	N IN DEGREES FOR UPWASH IVE FOR FLOW	FROM	LEFT SUMEY
MOTE- T	NOTE- TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW	<u>:</u>		RANCE IN CLEAT PAG	NOTE- TA	TABLE IS SEEN	IS SEEN FROM THE BANK	Post.			R AKE MOUNTING







OPERATING CONDITIONS, ALPHA= . 0 DEG PSI=0 DEG 11.4 PSF. CONFIGURATION FHBF 94	POINT 6 ALPHA = .0 DEG PSIIIVE FOR ILVING POINT 6 ALPHA = .0 DEG PSIIIVE FOR ILVING PSI
---	---

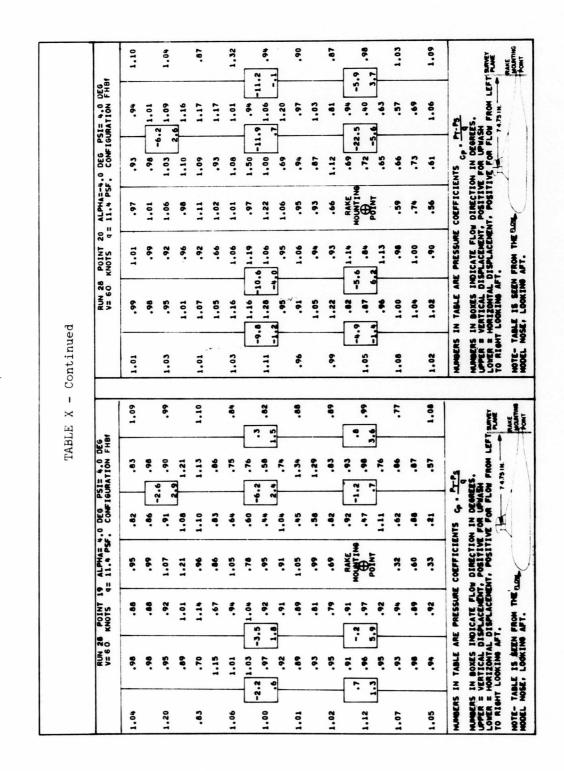
	RUN 28	POINT 6	ALPHA=-6.0		DEG PSI=0 DEG CONFIGURATION FHBF	1		NON 28	KNOTS	9 ALPHAE-8.	-	DEG PSI=0 DEG	-
86.	1.01	8.	8.	06.	1.11	1.00	1.04	1.01	.92	ě.	1.01	88.	.8.
	66.	06.	1.00	06.	10.1			1.00	.93	96.	86.	*.	
1.01	10.1	.92	1.02	.97 -10.2	1.05	1.03	86.	1.01	1.06		1.02	1.05	.93
	%	. 62	%	•••	1.00			1.01	8.	86.	*.	10:1	
66.	96.	.76	58.	.92	.97	1.05	1.02	\$6.	8.	Se.	.95	6.	1.02
	69.	*	69:	.75	.92			1.02	%.	\$6.	69.	98.	
.78	57.	.97	09.	0.	.05	1.00	.97	1.07	1.0	1.07	.79	57.	* .
- [17.51	1.07	1.21	1.42	1.91	ı.	-13.	1.20 -13.1	_	1.09	.73		٦.
1.31		-	1.26	: :	1.68	51.15] :	1.32	17.51	1:11	1.09	60.1	-3.0
	8 :	ę. F	8 ;	1.01	9 9		1.16	1.36		1.00	1.30	1.17	1.38
3	. 87			2 4	1.10			1.82	1.33	1.05	.78	1.13	
1.02	*	1.66	99.	.61	1.04	1.47	96.	1.19	1.08	8.	1.17	1.09	1.08
L	.65	.6	RAKE	.82	.79		<u>L</u> :	1.04	*.	RAKE	*6.	.93	Γ,
1.24 2.0		4 0	POINTING	.79 - 6.9	90.1	3.1	21.1		5,9 .95	Por No	.56 -3.9	z. z.	-1.1
1.12		. 78	65.		52.	1.12	1.14	1.03	. 62	4.	.55	4.	.83
	19.	.67	.22	.97	1.05			8.	57.	94.	.34	22.	
1.05	1.00	.62	97.	.61	1.09	1.04	1.05	1.04	\$.	.37	• 55		%
MEERS 1	NUMBERS IN TABLE ARE	- 141	PRESSURE COEFFICIENTS	ENTS Co. P. P.	9.5		NUMBERS	IN TABLE AR	ARE PRESSURE	COEFFICIENTS CP		8	
PER : V	UPPERS IN BOXES IN UPPER = VERTICAL DIS	DICATE FLO SPLACEMENT DISPLACEME	POSITIVE	DICATE FLOW DIRECTION IN DEGREES. SPLACEMENT, POSITIVE FOR UPAASH DISPLACEMENT, POSITIVE FOR FLOW FROM	GES. SH FROM LEFT	T SURVEY PLANE	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FROW FROM TO RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEME T.	W DIRECTION POSITIVE	ON IN DEGR	SH FROM LFF	I FFT SURVEY
TE- TAB	NOTE- TABLE IS SEEN	FROM THE FLOW	FLOW	1.	NI SAL	N.W.E.	MODEL TA	NOTE- TABLE IS SEEN FROM THE FLOW MODEL NOSE, LOOKING AFT.	FROM THE	10			RAKE MOUNTING

	RUN 28 V= 60.	POINT	10 ALPHAE-4.0		DEG PSI=0 DEG CONFIGURATION FHB!	9 %		RUN 28 V= 60	KNOTS 4:	1 ALPHA= 4.0	4.0 DE6 P	DE6 PSI=0 DE	0E6 FHB f
11.11	16.	.6.	ş	98.	.82	26.	.93	1.03	\$.	1.00	1.21	s.	1.06
	1.02	%	1.03	06.	:			86.	1.00	06.	1.41		
86.	8.	.9.	.93	1.04	96.	8.	.91	16:	06.	98.	86.	96.	.
	%	.97	16.	1.07	•			87.	•	.82	29.		
.63	6.	11.11	87.	1.09	ě	1.13	.58	29.	.93	69.	.79	1.00	. 95
	11.	1.07	\$6.	1.09	1.02			84.	1.09	1.04	1.55	1.22	
1.08	1.15	1.03	1.07	.81	1.15	1.02	16.	* .	5.	1.04	1.05	1.22	.97
L	1.26		1.27	.07	8.	_ 		\$ ·	69.	\$9.	.29		:
1.00	1.10	1.23	10.1	1.23	.76	1.08	68.	1.16	.92	.63		6.	£
-6.0	\$. •.	1.00	57.		%.	-	_		.92	.70	.82	*.	-
1.00	06.	57.	.03	.01	.76	26.	6.	•	.92		.65	.26	.87
	.92	.65	16.	ě.	%.			56.	.67	8.	.55	.97	
.92	96.	*.	*	• 65	8.	•••	06.	1.01	95.	.42	۲.	1.09	98.
L	1.01	9.	RAKE	*	1.00		Li	8:1	8. [°	RAKE	.30	26.	Ţ;
1.12	.78	11.11		96.	s.	.5.92	1.06	86.	3.1	Φå	. 8 5		9.5
2] 9. 9.	95.		64.	85.	<u> </u>		20:1 	1:1		95.	3 3	_
1.04	.42	.31	%.	.62	1.07	.87	1.03	1.0	.72	64.	16.	Se.	6.
	.87		*	.72	.62			\$.	.76	.52	17.	86.	
1.04	16.	86 .	1.02	57.	•	6 .	1.04	6 .	1.00	8.	•\$•	ş	8.
UMBERS	IN TABLE A	RE PRESSUR	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS	ENTS C.	T.P.s		NUMBERS	IN TABLE AF	ARE PRESSURE	E COEFFICIENTS		2.F 9	
PPER =	VERTICAL DI HORIZONTAL	NDICATE FLISPLACEMEN DISPLACEMEN	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREÉS. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO DISPLACEMENT, POSITIVE, FOR FLOW FROM TO DISPLACEMENT, POSITIVE, FARTON FROM	ON IN DEGREES. E FOR UPWASH IVE FOR FLOW FF	SEES. OW FROM LE	LEFT SURVEY	UPPER = LOWER = TO RIGHT	WUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES, LOPPER = VERTICAL DISPLACEMENT, POSITIVE FOR LUBMASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	VOICATE FLO ISPLACEMENT DISPLACEMENT	OW DIRECTION T, POSITIVE ENT. POSITIVE	ON IN DEGR	IEES. ISH OW FROM LE	LEFT SURVEY
OTE TA	NOTE TAHLE IS SEEN	N FROM THE FLOW	FLOW			PAKE MOLETING	NOTE- TA	NOTE- TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW			PAKE

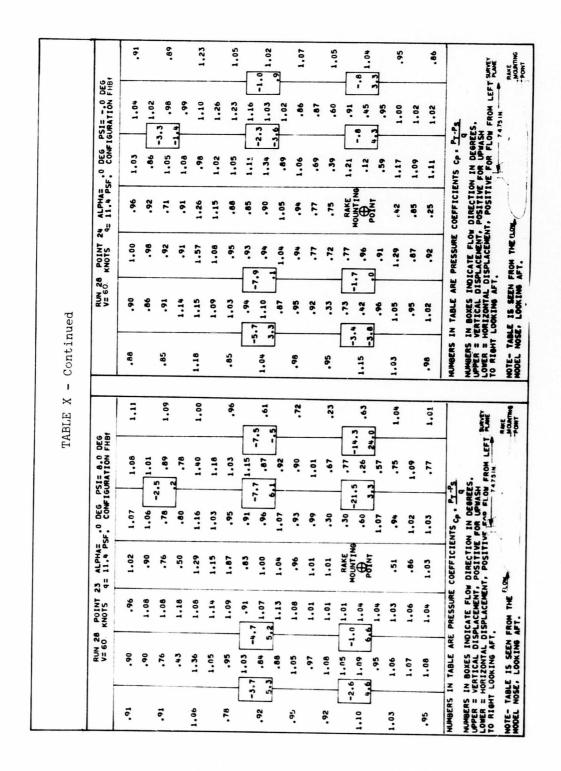
	RUN 28 V= 60.	POINT	12 ALPHA= 8.0 (9= 11.4 PSF.	S.O DEG	DEG PSI=0 C	OEG FHBf		RUN 28 V= 60.	FOINT 13 KNOTS 9:	3 ALPHA= .	0	DEG PSI=-8.0 DEG CONFIGURATION FHB	DEG F HBf
	٤.	8.	97.	.78	.55	.59	1.04	1.00	1.04	86.	1.07	1.08	3.06
	۲.	.82	67.	3.	ž.			.97	1.02	1.08	1.00	1:1	
	.63	10.		. 27.	36.	. 4.	%.	16.	1.04	1.08	1.13	1.10	1.05
	.93	96.	57.		1.21			.91	16.	69.	1.06	1.05	
	17.	.92	٤٢.	1.22	1.16	1.00	1.17	1.52	1.13	1.16	1.14	1.06	1.05
	.67	.67	.87	1.06	1.06			1.45	1.16	1111	1.07	1.16	
	6.	99.	1.04	.47	1.10	16.	1.17	.97	1.02	1.08	.95	1.10	1.13
Ŀ	.92	*.	1.23	50.	*	-		1.01	50.1	66.	1.18	1.16	٦;
•	70.		.62	.75	1.08	*·	6.	3.6. 3.6.	16.	56.	1.13	1.21	96.
		16:	54.	.97	.59	<u>-</u>		66.		.97	1.07	1.10	-
	* .	.67	.76	.53	9.	1.01	.92	.93	.92	96.	1.03	1.08	1.07
	1.00	87.	%.	87.	.76			1.00	97.	87.	96.	8.	
	.92	.59	.62	1.04	••	96.	1.08	1.12	.92	.82	88.	.91	1.14
Ľ	16.	.65	RAKE			-[.22	RAKE	96.	*	۲.
	1.08	1.00	£ 5⊕		16.	.9	.97	79.	95.		1.00	96.	11.11
•	1.06	9.		.6	1.06	*;-		.58	¥.		.9.	96.	-
	1.08	76.	.83	1.05		*	1.03	*S.	.57	1.07	1.02	11.11	1.04
	96.	.97	.35	67.	6.			1.15	.29	*6.	1.06	1.08	
	1.04	1.10	. 42	.87		**	<i>š</i> .	1.07	.70	96.	1.13	1.06	1.02
RS	NUMBERS IN TABLE ARE		PRESSURE COEFFICIENTS	3	됩		NUMBERS	IN TABLE	E PRESSURE	ARE PRESSURE COEFFICIENTS	3	Th.	
S	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	DICATE FLOSPLACEMENTO DISPLACEMENT	CCATE FLOW DIRECTION IN DEGREES. LACEMENT, POSITIVE FOR UPWASH SPLACEMENT, POSITIVE FOR FLOW FROM LEFT SAMEY AMERICAN PARTIES FOR THE FOR THE FAME FROM LEFT SAME FOR THE FAME FAME FAME FAME FAME FAME FAME FAM	N IN DEGR FOR UPWA VE FOR FL	EES. SH OW FROM L	EFT SURVEY	NUMBER UPPER LOWER TO RIG	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERZIGAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONAL DISPLACEMENT, POSITIVE FOR FLOW FROW TO RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEME T.	DW DIRECTION FOR POSITION POSITION	ON IN DEGI	REES. ASH LOW FROM LE	LEFT SURVEY
1	NOTE - TABLE 15 SEEN	FROM THEFLOW	101			MOMEN	NOTE-	TABLE IS SEEN FROM THE	FROM THE	FLOW			RAKE

1.01 1.06 1.06 1.07 1.01 1.07		RUN 28 V= 60	POINT KNOTS	14 ALPHA=-8.0 q = 11.4 PSF.	8.0 DEG P	DEG PSI=4.0 DEG	9 60		NUN 28	KNOTS	S ALPHA=-	8.0 DEG	ALPMA=-8.0 DEG PSI=-4.0 DEG 11.4 PSF, CONFIGURATION FHB9	
1.13 1.09 1.05 1.01 1.00 1.08 1.08 7.7 1.01 1.10 1.00 1.09 1.00 1.00 1.00 1.00	66.	-92	<i>*</i> .	1.00	69.	.87	10:	%.	1.06	1.07	10.1	1.07		8.
1.13 1.09 .96 .96 1.05 .94 1.00 .99 1.00 1.00 1.00 1.00 1.00 1.00		10.1	1.00	8.		_			1.02	1.01	1.08	_		
1.13 .84 1.01 .66 .96 .96 1.06 1.05 1.07 1.13 .84 1.01 .66 .63 1.22 1.12 14.3 1.25 .69 1.24 1.06 1.06 1.06 1.06 1.06 1.06 1.06 1.06	1.01	1.06	.95	*6.			.93	1.01	%	8.	1.05			66.
1.13 .84 1.01 .66 .96 .96 1.06 1.07 1.07 1.01 1.18 .97 .99 1.22 1.12 1.45 1.25 1.22 1.12 1.45 1.25 1.15 1.16 1.06 1.06 1.06 1.06 1.06 1.06 1.06		1.02	1.02	16.	_				. 95	1.10	1.00	_	-	
1.13 .84 1.01 .66 .83 1.22 .89 1.21 1.47 -13.6 1.15 -12.6 1.25 2.22 1.12 -14.3 1.25 -11.7 1.28 1.24 1.06 -6.2 1.35 1.31 1.26 -5.1 1.25 -5.4 1.08 1.08 .95 .91 .98 .85 .84 1.08 1.02 .72 1.18 1.04 1.01 1.02 -5.4 1.08 1.05 .72 1.18 1.04 1.01 1.02 1.09 1.00 1.05 .47 .62 .58 .85 .82 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	96.	%	6.	1.13		1.01	86.	1.09	9.	86.	%.	1.06	1.07	1.01
1.13 .84 1.01 .66 .83 1.22 .89 1.21 1.47 -13.6 1.15 -12.6 1.35 1.31 1.26 -5.1 1.25 1.17 1.22 1.47 -13.6 1.18 -6.2 .96 1.06 1.09 .85 .84 1.08 .95 .91 .98 .85 .89 .89 1.08 .95 .91 .98 .85 .89 1.09 1.00 .95 .91 .98 .85 .89 1.00 1.00 .95 .91 .98 .85 .89 1.00 1.00 .95 .91 .98 .85 .89 1.00 1.00 .87 .81 .88 .89 .89 .89 1.00 1.00 .87 .81 .88 .88 .88 .88 .88 .88 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PTPS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT. POSITIVE FOR PUMBERS. TAME NAME HALE IS SEEN FROM THE TAME NAME HALE TAME TAME THE TAME TAME NAME HALE TAME TAME TAME TAME NAME HALE TAME TAME TAME TAME NAME HALE TAME TAME TAME TAME TAME NAME HALE TAME TAME TAME TAME TAME NAME TAME TAME TAME TAME TAME NAME TAME TAME TAME TAME TAME TAME TAME NAME TAME TAME TAME TAME TAME TAME TAME T		16.	*6.	16.	1.04	1.05			67.	۲.	1.01	1.18	.97	
1.28 1.04 1.15 1.25 2.22 1.12 1.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.35 11.36 1.06 1.08 1.08 1.08 1.06 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08	1.20	57.	.91	.82	1.06	1.14	1.13	*0.	1.01	89.	.63	1.22	6.	1.08
1.28 1.04 -1.06 1.08 1.06 1.08 1.07 1.128 -1.17 1.28 -1.17 1.28 -1.17 1.28 -1.17 1.28 -1.17 1.28 -1.17 1.28 -1.17 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08	Ŀ	.90	_	94.	_	1.16			1.15	_	2.25	_	1.35	
1.26 1.06 .95 .91 .96 .95 .94 .96 .95 .94 .96 1.06 1.08 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .94 .95 .95 .95 .95 .95 .95 .95 .95 .95 .95		1.13		1.21	_	6.	1.21		1.18		1.31	_	1.25	1.19
1.08 1.08 .95 .91 .98 .85 .86 .89 .89 .89 .89 .89 .89 .89 .80 .80 .80 .80 .80 .80 .80 .80 .80 .80]	1.17	1	1.26	_	3.1	3.0	<u>"</u>	1.06		1.06	_	.89	<u>.</u>
1.06 1.02 1.06	1.58	1.39	1.26	1.28	1.20	1.39	1.28	1.08	8.	.91	96.		ě.	1:1
1.06 1.06		1.27	1.22	1.08	1.07	11.11			.87	.82	1.38	.82	8.	
1.04 1.15 -15.4 68 -17.6 HOUNTING 1.18 -6.6 1.00 -7. 1.04 1.15 -4.3 68 -17.6 95 POINT 96 -2.2 1.00 -2.2	1.19	*6.	.97	*6.	1.05	1.02	1.08	1.02	.72	1.16	1.04	1.01	1.02	66.
1.04 1.15 1.27 68 1.09 75 POINT 106 2.2 1.00 2.7 1.04 1.06 1.06 1.06 1.06 1.06 1.06 1.06 1.06	٤	.82	_	RAKE	*9.	96.			.85	120	RAKE	1.18	1.04	1
.90 1.06 .47 .62 .56 .86 1.00 .91 .92 .92 .36 .89 1.00 .92 .92 .36 .89 1.00 .93 .95 .92 .82 .94 .91 .97 .81 .61 .52 .82 .82 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS .992 NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = HORIZONIAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR UPWASH NAME NOTE - TABLE IS SEEN FROM THE *LOWER NOTE - TABLE *LOWER NOT		66.			.82	1.00	1.04		99.			.90	1.00	.7
.90 1.06 .47 .62 .56 .86 1.00 .91 .92 .36 .85 .82 .92 .36 .85 .82 .93 .94 .95 .95 .96 .92 .96 .94 .95 .95 .96 .95 .96 .95 .96 .95 .96 .96 .96 .97 .91 .91 .92 .96 .96 .92 .96 .96 .96 .92 .96 .96 .97 .91 .91 .92 .94 .94 .94 .94 .94 .94 .94 .94 .94 .94	2	36.		NIO1	1.14	*		i] .			POINT	%.		٠.
.91 .97 .81 .61 .61 .92 .36 .85 .82 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. PTPS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT. NOTE— TABLE IS SEEN FROM THE *LOWER NOTE— TABLE THE *LOWER NOTE— TABLE THE *LOWER NOTE—	1.04	.95	. 47	.42	99.	96.		1.06		.62	.58		1.00	.89
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS G. P.P.S. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONNAL DISPLACEMENT. POSITIVE FOR PLOW LEFT TO RIGHT LOOKING AFT. NOTE. TABLE IS SEEN FROM THE *LOOK. NOTE. TABLE THE *LOOK. NOTE. TAB		.62	1.12	.61	1.06	.92			99.	.92	.36	.05	.02	
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. P.P.S. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR PROSSURE TO RIGHT LOOKING AFT. NOTE - TABLE IS SEN FROM THE *LOWER NOTE - TABLE	96.	.05	.81	.39	86.	ŧ.	16.	76.	16.	19.	.52	.82	.62	. 85
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZON'AL DISPLACEMENT. POSITIVE FOR FLOW FROM LEFT TO RIGHT LOOKING AFT. RANK NOTE—TABLE IS SEEN FROM THE *LOWER NOTE—TABLE TABLE THE *LOWER	NUMBERS	IN TABLE ARI	E PHESSURE	COEFFICIE	ENTS Cp . D	शु.		NUMBERS	IN TABLE AR	E PRESSURE	E COEFFICE		2H	
MONTH NOTE TABLE IS SEEN FROM THE FLOW.	NUMBERS UPPER =	IN BOXES IN VERTICAL DI HORIZONTAL (LOOKING AF	DICATE FLOSPLACEMENT SPLACEMENT	POSITIVE	E FOR UPWA	SH FROM LET		NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES IN VERTICAL DI HORIZONTAL LOOKING AF	DICATE FLOSPLACEMENT	T, POSITIVENT. POSITIVE	ON IN DEGR	EES. SH OW FROM LEF	T SURVEY
	VOTE- TAI	SEE IS SEEN	FROM THE	FLOW		# C.	RAKE MOLNTING	NOTE - TA	BLE IS SEEN	FROM THE	Troit.			RAKE

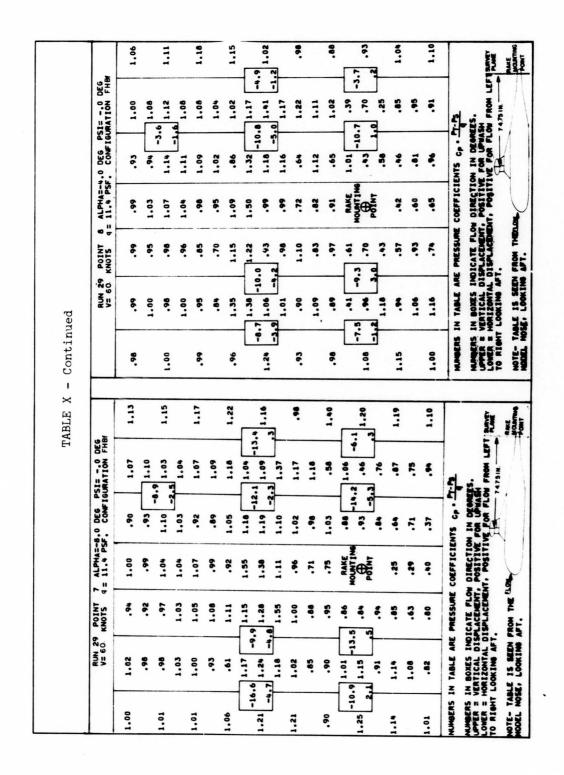
	RUN 28 V= 60.	POINT KNOTS	16 ALPHAE-4.0 9= 11.4 PSF.	F. CONFI	DEG PSI=-4.0 DEG CONFIGURATION FHBR			RUN 26 V= 60.	POINT	17 ALPHA= 4.0 q = 11.4 PSF.	DEG	DEG PSI=-4.0 DEG CONFIGURATION FHBF	9
.92	s.	1.03	į	.6.	1.04	86.	6.	.0.	1.00	8.	ă.	86.	*·
	16.	16.	1.00		91.1			16.	1.28	٤٢.	-11.	<u>*.</u>	
*	8.	1.01	1.04	*	-3.9	1.00	16.	1.15	.60	• 56	17.	*	.79
	1.04	1.02	1.04		96.			1.15	16.	6.	% .	*.	
1.02	1.15	1.07	8.	%.	1.06	1.02	1.00	15.	1.07	1.03	99.	٥٠.	. 85
	.93	.97	%	1.11	1.19			37.	69.	1.20	.87	3.	
6.	1.09	1.09	1.15	1.18	1.13	1.10	¥.	8.	16.	27.	.70	10.	.95
L	1.40	1.30	1.35	1.10	1.22	_	L	%	% .	1.01		*6.	√ ;
1.15	1.01		1.17	8.	1.21	1.07	6.	.78	%.	7	%.	1.03	1.01
ij	1.02	1.02	1.05	1.1	1.10	-	<u>.</u>	8. ?-	26.		8.	1.03	-
.97	%.	1.01	*.	1.09	1.10	1.13	%.	.92	.62	91.	1.18	*	1.08
	18.	6.	.29	1.02	1.12			8.	.45	.39	69.	%.	
1.06	* .	.97	ş.	1.02	1.04	1.04	.92	.70	3 .	.61	*6.	.0.	1.10
			RAKE	86.	8.		_	3.		RAKE	.93	26.	[;
90.1					.93	1.13	1.04	.7	-1.9		1.13	1.03	1.08
ij	97.	.52	MIO	•	1.05		<u> </u>	۳.	27.			86.	
1.02	.75	7.	.58	. 82	1.11	1.02	1.01	٤٢.	. *2	86.	96.	1.09	1.07
	.87	.65	.76	1.12	1.10			۲.	9.	.92	1.08	1.03	
96.	.62	•	. 63	1.09	1.09	8.	86.	67.	* 5.	.27	11.11	1.07	.
MHERS	NUMBERS IN TABLE ARE	141	PRESSURE COEFFICIENTS	3	14.		NUMBERS	IN TABLE A	ARE PRESSURE COEFFICIENTS CP :	E COEFFICI	ENTS Cp .	2 - S	
PER :	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO BEAT I DOWING AFY	NDICATE FI ISPLACEMEN DISPLACEN	TOW DIRECTI	ON IN DEGI	NEES. NSH LOW FROM LEFT	T SURVEY	NUMBERS UPPER = LOWER =	IN BOXES I VERTICAL D HORIZONTAL	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPMASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO REATH LONGING AFT.	OW DIRECTION TO POSITIVE	ON IN DEG	REES. ASH LOW FROM LE	LEFT SURVEY
)TE- T	NOTE- TABLE IS SEEN	N FROM THE FLOW	FLOW	1		PAKE	NOTE- TA	TABLE IS SEE	IS SEEN FROM THE FLOW	101	V		RAKE



1.04 1.00		21 ALPHA=-8.0 q= 11.4 PSF.	CONFIGU	DEG PSI= 4.0 DEG CONFIGURATION FHB?			RUN 28 V= 60.	KNOTS 4:	2 ALPHA=-8.0		DEG PSI= 4.0 DEG CONFIGURATION FHB	
	86.	16.	86.	00.	.62	1.00	1.02	69:	66.	8.	.	8.
	6.	69.	1.00	.			1.05	1.02	1.00	.62	.	
	6 .	.93	68:	8.	.87	1.09	1.06	1.11	.91	1.03	96.	·
	86.	.92	%.	1.01			1.02	1.02	98.	1.07	1.06	
	.6.	.97	1.04	1.00	.87	1.12	1.04	1.01	.91	1.08	1.08	1.05
1.04	.82	86.	1.04	1.06			8.	1.01	.91	1.04	1.06	
1.06 1.14	.59	1.14	.91	1.12	.62	1.05	96.	.92	11:11	6.	.93	1.06
96.	1.25	1.01	1.29	.91		Ŀ	1.08	8.	56.		10.	10
1.15	-	1.12		*	3,2	.81	1.21	96.	1.07	18.	.51	.96
1.28	86.	1.23	1.09	1.01]	1.24	1.21	1.26	1.13	3:1	L
1.20 1.12	1.03	1.19	.03	06.	86.	5.06	1.16	1.28	1.30	1.47	1.27	1.27
.92	69.	98.	.61	.82			1.16	1.15	1.17	.88	1.11	
. 99	1.00	98.	÷5.	69.	.87	1.07	1.19	1.05	66.	96.	96.	86.
3.0 1.00	-7.6 1.10 -1.3 1.05	MOUNTING POINT	.39 5.8	1.83	, ş.	1.15 2.4	1.02	20,3	RAKE MOUNTING	1.15	4.1 .62 -14.8	15.
1.06 1.07	1.26	.67	.76	1.13	9.	1.06	.92	1.12	.82	. 56	.20	. 85
86.	1.23	.25	69.	19.			.87	66.	.47	.25	96.	
.91 1.28	ŧ.	*9.	*	**	٤٠.	1.05	%	1.10	.22	.57	.42	. 88
NUMBERS IN TABLE ARE		E COEFFICIE	COEFFICIENTS Cp . Pr.Ps	5		NUMBERS	IN TABLE AR	ARE PRESSURE		COEFFICIENTS CP : TIPE	5. T	
NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	INDICATE FLY DISPLACEMENT AL DISPLACEMENT	OW DIRECTION TO POSITIVE ENT. POSITI	IN IN DEGRE	ICATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH ISPLACEMENT, POSITIVE FOR FLOW LEFT SAWEY	T SURVEY	NUMBERS UPPER = LOWER =	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	VOICATE FLO	OW DIRECTI T, POSITIV ENT. POSIT	ON IN DEGR	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR LUPWASH LOWER = HORIZONIAL DISPLACEMENT, POCITIVE FOR FLOW FROW LEFT TO RIGHT LOOKING AFT	SURVEY
NOTE- TABLE IS SEEN	EEN FROM THE FLOW	FLOW			RAKE	NOTE- TA	NOTE- TABLE IS SEEN FROM THE FLOW	FROM THE	FLOW			MOUNTING



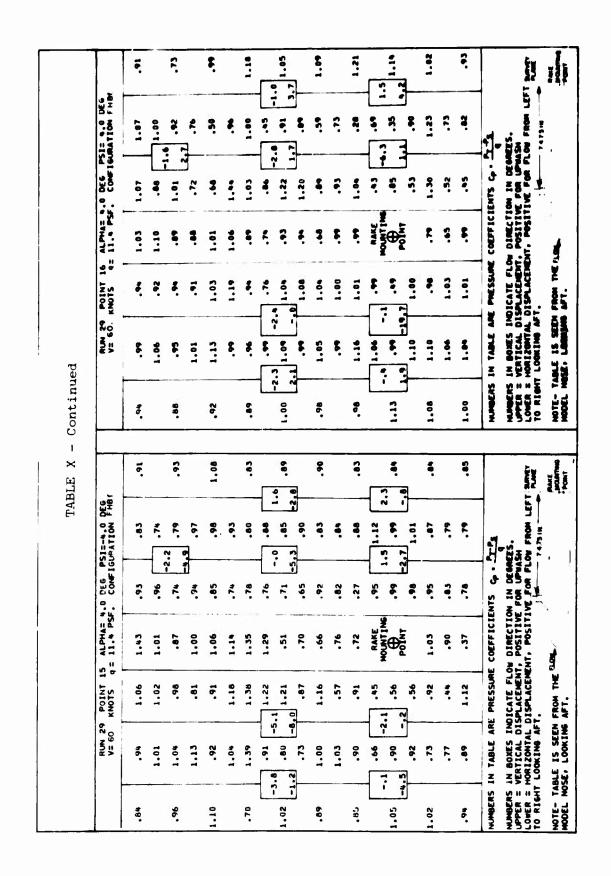
1.05 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.01 1.02 1.17 1.17 1.17 1.10 1.09 1.00 1.09 1.10 1.09 1.10 1.09 1.10 1.09 1.10 1.09 1.10 1.09 1.10 1.09 1.10 1.10		RUN 29	POINT KNOTS	5 ALPHA= .0		DEG PSI= -,0 DEG CONFIGURATION FHB!			RUN 29	POINT	6 ALPHA=-8.0		DEG PSI=0 DEG CONFIGURATION FHB	هَو
1.00 09 00	16.		*		ş.	11.11	8.	1,02	1.07	%	1.06	1.05	1.18	1.29
1.00 .69 .92 1.11 .24 .94 .10 .1		6.	•	9.	_	_			1.00	8.	1.00			
1.00 97 1.12 19 117	96	1.00	69.	.92			9.	1.05	1.00	1.05	1.03			1.24
1.10 1.12 1.13 1.10 1.10 1.10 1.32 1.00 .95 1.00 .95 1.00 1.01 1.11 1.11 1.11 1.11 1.11 1.1		1.06	.97	1.12	-	2		-	86.	1.08	1.02	-	_	
1.11	.07	1.04	1.22	1.14	1.10	1.4.1	1.32	1.00	56.	1.06	6.	1.17	1.17	1.21
1.11		1.07	1.19	1.1	1.23	8.			56.	6.	6.	1.18	1:11	
1.06 -5.7 1.06 -5.7 1.09 1.01 1.00 1.01 2.2 95 1.0 1.00 1.01 2.2 95 1.00 1.00 1.01 1.00 1.01 2.2 95 1.00 1.00 1.01 1.00 1.01 2.2 95 1.00 1.00 1.01 1.00 1.01 1.00 1.01 1.00 1.01 1.00 1.01 1.00	36	11.11	.87		1.18	8.	1.00	.93	1.08	6.	ě.	1.16	1.12	1.16
149	L	1.06	_	1.09	L			Ľ	1:1		8.	_	11.11	Ţ:
1.00		%	-	1.00		8.		-	1.19	ادر فيا	1.18			.95
1.96 .95 .97 .97 .97 .92 .97 .97 1.07 1.09 1.35 1.19 1.65 1.42 1.97 1.07 1.07 1.07 1.07 1.07 1.07 1.07 1.0	J		-	•	_	_ ; ¬	7	<u>'</u>]	1.09	_	1.24	_	9	1
-2-1	36	8.	.95	.87	.37	.82	.92	1.31	1.50	1.36	1.28	1,57	1.37	1.52
-2.1 1.12 3.6 MOUNTING 61 -5.5 .99 1.05 1.15 1.11 1.07 1.08 1.05 .71 1.07 1.17 1.09		*	69.	.83	.60	\$9.			1.39	1.33	1.19	1.65	1.45	
-2.1 1.12 3.6 HOUNTING .18 -5.5 .70 -1.7 1.06 -12.9 .76 HOUNTING .93 -6.5 .96 -6.5 .99 1.05 1.15 1.11 1.15 1.10 1.12 3.6 .95 .90 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.0	56.	.92	.78	.76	.27	.51	.97	1.07	1.08	1.05	17.	1.07	1.17	1.23
1.12 1.14 1.15	تا	16.	_	RAKE	.18	.70	1.	Li	1.00		RAKE	8.	.96	
1.00 .95 .54 1.11 .32 1.05 1.14 1.17 .76 .74 .95 1.26 1.12 .99 1.05 1.14 1.17 .76 .74 .95 1.26 1.26 1.06 .99 .69 .51 1.02 1.02 1.12 .35 .80 .79 1.05 1.01 1.04 1.01 1.06 1.06 1.09 .60 .74 .53 1.01 1.04 1.01 1.06 1.06 1.06 1.09 .60 .74 .53 1.01 1.04 1.01 1.04 1.01 1.06 1.06 1.09 .60 .74 .53 1.01 1.04 1.01 1.06 1.06 1.09 .60 .74 .53 1.01 1.04 1.01 1.06 1.06 1.09 1.09 1.09 1.09 1.09 1.09 1.09 1.09		1.12	, ,	Φ,	.61	9.			11:1		0	.83	.95	
1.06 1.06 1.06 1.05 1.05 1.14 1.17 1.78 1.74 1.26 1.26 1.09 1.09 1.01 1.04 1.01 1.09 1.09 1.05 1.02 1.12 1.35 1.00 1.09 1.09 1.01 1.04 1.01 1.00 1.00 1.00 1.05 1.00 1.00 1.00 1.05 1.01 1.02 1.02 1.02 1.05 1.02 1.02 1.02 1.05 1.05 1.03 1.04 1.01 1.04 1.01 1.04 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.05 1.06 1.07 1.09 1.05 1.07 1.09 1.05 1.05 1.08 1.06 1.09 1.05 1.09 1.00 1.05 1.00 1.00 1.05]	1.00	2		, \$¢.	1111	-]	1.17			_	_	-
.04 1.01 1.06 1.06 1.09 .60 .74 .53 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. P.P.P.S NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR PLOW FROM LEFT TO RIGHT LOWER = HOSTON AL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT NOTE - TABLE IS SEEN FROM THE FLOW.	*0	96.	1.06	9.	.05	6.	1.05	1.14	1.17	.78	¥.	.6.	1.26	1.15
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. PTPS NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS C. PTPS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPMASH LOWER = HONZZONNAL DISPLACEMENT, POSITIVE FOR FLOW LEFT TO RIGHT LOOKING AFT. NOTE - TABLE IS SEEN FROM THE FLOW.		6.	69.	.51	1.32	1.02			1.02	1.12	.35	.	67.	
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PT-PS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH IN PROPERTY OF TO RIGHT LOOKING AFT. NO RIGHT LOOKING AFT. NOTE TABLE IS SEEN FROM THE LOOK.	96	8.	.90	£.	1.01	1.04	1.01	1.08	1.06	1.09	09.	٠٢.	.53	1.18
RAM I FFT SURVEY LOWER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT. RAME HOTE - TABLE IS SEEN FROM THE LONG.	MBERS	IN TABLE AR		E COEFFICI	ENTS Co . T	s,	Γ			RE PRESSUR	E COEFFICI	3	PrPs	
FROM THE FLOW.	MBERS PER = WER = RIGHT	IN BOXES IN VERTICAL DI HORIZONTAL LOOKING AF	DICATE FLOSPLACEMENTO ISPLACEMENT.	OW DIRECTION T, POSITIVE ENT. POSITIVE	IN IN DEGRE	EES. SH FROM 1 FF	T SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	IN BOXES IN VERTICAL DI HORIZONTAL LOOKING AF	VOICATE FLOISPLACEMEN DISPLACEMEN	DW DIRECTION T, POSITIVE ENT, POSIT	ON IN DEG	REES.	FT SURVEY
	TE- TA	BLE IS SEEN	FROM THE	FLOW			PAKE	NOTE- TA	BLE 15 SEE!	FROM THE	FLOW	I. \		RAKE

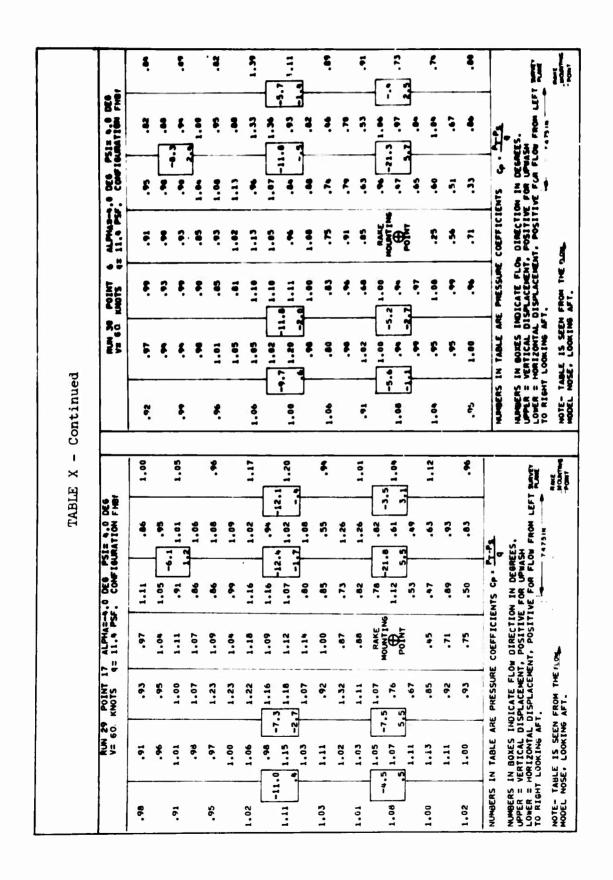


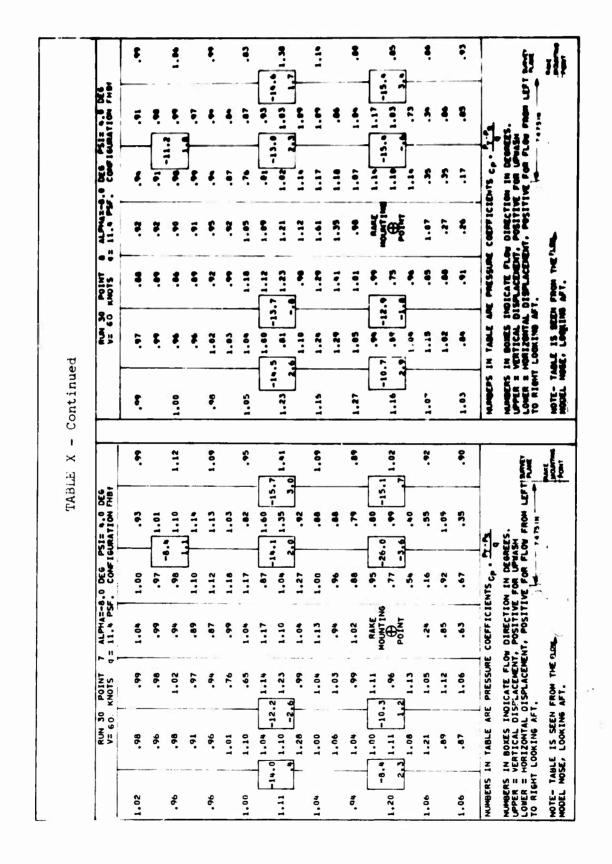
	RUN 29 V= 60.	POINT KNOTS	9 ALPHA= 4.0		DEG PSI=0 D	DE6 FHB1		RUN 29	KNOTS 4	ALPHA= 8.0	F. CONFI	DEG PSI=0 DI	OE6	
86.	%.	6.	.99	86.	.6:		ş	06.		97.	8.		-	1.05
	.6	. 89	89.	00.	71.02			8.	.72	1.	.75	٠ •		
1.05	.92	.08	18:			.92	16.	ŧ	9.	69.	•	76.	_	1.01
	.97	96.	š.		ैं. न_			.67	.57	19:	*.]	٠ <u>.</u>		
.93	1.05	1.07	8.	.60	1.76	1.40	8.	۲.	• 58	98.	ě.	3.		.91
	.92	.65	96.	1.08	1.07			٤.	8.	67.	1.32	š .		
.85	27.	5.	9.	66.	1.02	1.19	1.04	1.07	%.	s.	64.	ē .		.93
_	.87	.82	96.	".	.82	_ _		*	*:	ě.	8.	ž.		
<u>.</u>	8.	99.	\$.	.31	79.	.6		56.	, ;	18:	19.	*		96.
J	00.1	*.	1.01	.59	9.	<u></u>			69.	%] ‡	š.	-	
.93	1.00	*.		.57	.92	.97	.97	86.	67.	8.	98.	.93		.86
	.92	.80	.45	.05	.23			.92	.71	.37	.75	1.04		
*6.	1.01	94.	35.	98.	.87	%	.93	16.	0.	.31	.72	11:11		.87
_	1.01	1.03	RAKE	.70	8	-[_	\$. 	8.	RAKE	9 .	1.01		
1.10	1.02	1.25		.67	.93	1.2	1.06	56.	.57	⊕ a	1.03	**	3	.88
ח	56.	1.02	NIO.	1.32	.98	2.0		*.	ş		*	<u>.</u>	_	
1.09	1.03	.76	.36	6 .	8.	1.04	1.08	6.	57.	•10		8.		96.
	.91	.89	96.	.58	96.			.92	۲.	64.	.	ę.		
66.	\$6.	.89	04.	%.	10.1	1.08	6.	16.	.57	54.	1.01	8.	_	1.03
BERS	NUMBERS IN TABLE ARE P	E PRESSUR	RESSURE COEFFICIENTS Co .	NTS Co. P.	P1-P5		NUMBERS	NUMBERS IN TABLE AF	ARE PRESSURE COEFFICIENTS	E COEFFICE		210		
ER =	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = HORIZONTAL DIS TO RIGHT LOOKING AFT.	DICATE FL SPLACEMEN DISPLACEM	ATE FLOW DIRECTION IN DEGREES. ACEMENT, POSITIVE FOR UPWASHES, PLACEMENT, POSITIVE FOR PLOW FROM LEFT SAME.	FOR UPWAS	SH FROM LE	FT SUREY	UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. HOPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	ADICATE FLO ISPLACEMEN DISPLACEMENT.	DW DIRECTI T, POSITIVENT, POSIT	ON IN DEG	ASH LOW FROM L	LEFT SURVEY	E S
- 1	NOTE- TABLE IS SEEN FR	FROM THE FLOW	FLOW			RAKE	NOTE- T	TABLE IS SEEN FROM THEFLOW	FROM THE	FLOW			A AKE	RAKE

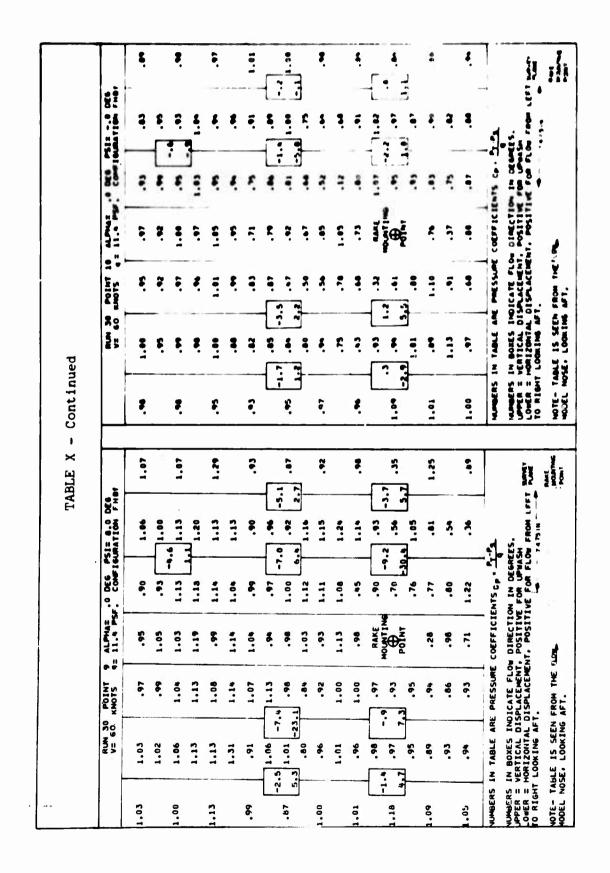
	RUN 29 V= 60.	KNOTS 4	1 ALPHA .0 0	O DEG P	DEG PSI=-8.0 DEG CONFIGURATION FHB	94		RUN 29 V= 60.	POINT 12 KNOTS 9:	: ALPHA=-8.0 = 11.4 PSF.		DEG PSI=-4.0 DEG CONFIGURATION FHBF	_
%	.93	6.	8	.05	.76	07.	36.	.93	8.	1.02	1.00	1.01	8.
	96.	8.	8.	.82	ı.			.87	1.02	6.	1.00	ı.	
1.09	1.08	6.	1.09		1.01	8.	.6	.92	.97	8.	.91		.92
	1.18	.93	1.08	·.	1.09			16:	.97	8.	.92	8 .	
1.09	1.13	1.12	1.07	1.06	1.06	1.06	.92	16:	96.	%.	.91	.93	.95
	1.06	1.21	1.05	1.09	ŧ.			8.	%	1.06	69.	.93	
1.01	%.	1.12	60.	1.01	88.	1.01	88.	1.00	1.06	1.08	.05	8.	.87
	%	1.04	*	86.	•	-	L	1.06	1.1	1.18	.67	1.04	_
.88	96.	69.	16.	16.	17.		1.05	1.15	1.17	*:	1.28	1.23	.67
1	1.08	ş9.	.47	S	٤.	-	•	*.	1:1	1.22	1.34	1.30	_
98.	96.	.21	.57	.79	.62	6.	1.17	1.02	11:11	8.	1.17	1.16	1.34
	99.	.21	ş	.78	6.			1.17	1.17	5.	.93	1.00	
.82	27.	٤٢.	*	.63	.65	16.	8.	1.42	11.11	ş	57.	ŧ	1.10
-	16.	27.	RAKE	98.	.93	_ -:	L	.93	٠. د.	RAKE	1.00	11.01	_
. 99	.53	9.7	Φg	6.	ŧ	27.	1.12	26.	. ·		. 22	1.09	1.07
	8	ę.				_	<u></u>	26.	1.25	N TO	.92] 1.00	<u>;</u> }
96.	.59	.81	•	8.	.81	67.	1.08	1.0	6	1.	1.14	1.12	1.00
	₩.	%.	98.	.82	27.			į	÷	ŝ.	.91	1.0	
.92	9 .	.53	ś	.78	**	ø	.93	•	?	17.	1.08	1.01	8.
BERS	NUMBERS IN TABLE ARE	RESSURE	COEFFICIENTS		- a- 1		NUMBERS	IN TABLE AR	E PRESSURE	ARE PRESSURE COEFFICIENTS C.	INTS Co - PT	\$ 4	
ER SE	NUMBERS IN BOXES INDI UPPER = VERTICAL DISP LOWER = HORIZONTAL DI TO RIGHT LOOKING AFT.	VOICATE FLC ISPLACEMENT DISPLACEME	W DIRECTIC , POSITIVE NT. POSITI	CATE FLOW DIRECTION IN DEGREES. "LACEMENT, POSITIVE FOR UPASH "SPLACEMENT, POSITIVE FOR FLOW I	HES.		LOWER E	MAMBERS IN BOXES INDICATE FLOW DIRECTION IN DE LOWER = WENTICAL DISPLACEMENT, POSITIVE POR UB LOWER = WONZIONTA DISPLACEMENT, POSITIVE FOR TO RIGHT LOOKING AFT.	SPLACENENT DISPLACENE	POSITIVE	N IN DEGREES	0	LEFT SENT
- TA	NOTE- TABLE IS SEEN FROM THE "LOW.	FROM THE	10			PACE	NOTE - TA	TABLE 15 SPEN FROM	FROM THE BOX	100			RAKE

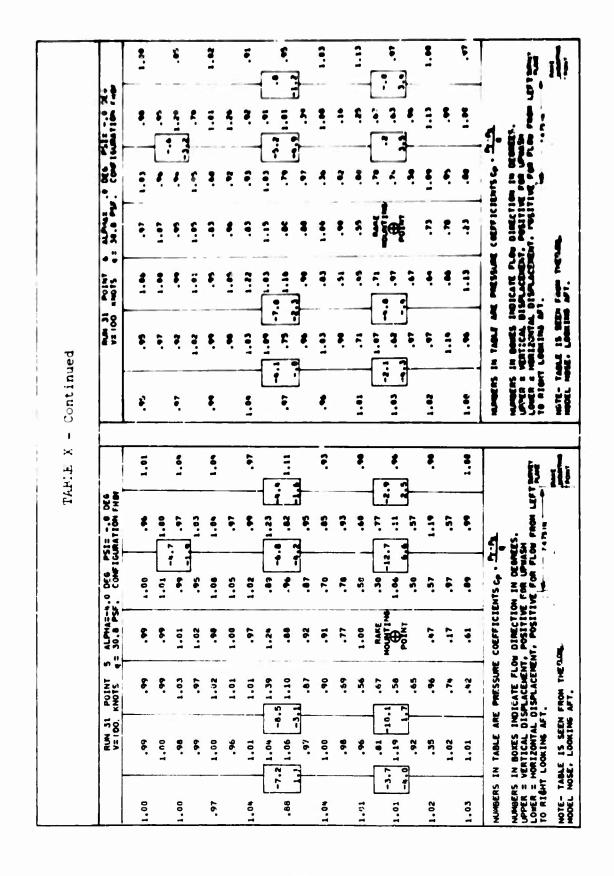
. 93 1.06 1.05 1.02 1.02 1.02 1.02 1.03 -3.6 1.02 1.03 -3.6 1.02 1.03 -3.6 1.02 1.03 -3.6 1.02 1.03 -3.6 1.02 1.00 -3.6 1.02 1.00 -3.6 1.02 1.00 1.00 1.00 1.00 1.00 1.00 1.00		RUN 29 V= 60.	POINT 15 KNOTS 9=	3 ALPHA=-8.0	CONFIG	DEG PSI=-4.0 DEG CONFIGURATION FHBS			RUN 29 V= 60	POINT 1	ALPHA 11.6		DEG PSI=-4.0 D	DEG FHB1
1.00 .97 1.00 .97 1.00 .97 1.10 1.11 1.11 1.00 1.00 1.1	1.00	1.02	1.00	1.03	.93	1.11	1.13	1.08	26.		1.05	1.02	1.02	1.12
100 100		1.00	76.	1.00	_	_			8.	11.11	1.04	ч	<u>~</u>	Bankin Sa
1.05 1.04 1.09 1.11 1.10 1.10 1.10 1.10 1.10 1.10	1.04	66.	1.00	6.			1.13	\$.	1.03	1.07	1.12	_	-	1.0
1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.00		.92	1.04	96.	٠,	9			1.06	1.09	1.11	٠.	_ _	
1.05 1.22 1.23 1.24 1.25 1.26 1.20 1.40 1.67 1.40 1.67 1.40 1.20	1.03	.67	6.	69.	.97	1.02	1.15	ç.	8.	· ·	1.06	1.07	3:	1.06
1.15 1.22 1.22 1.14 1.24 1.25 1.26 1.25 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20		9 .	69.	\$	1.13	66.				57.	8.	11.11	1.16	
13.4 1.12 1.12 1.13 1.24 1.25 1.25 1.25 1.25 1.25 1.25 1.26 1.26 1.26 1.26 1.26 1.26 1.26 1.26	99.	1.05	.52	.85	1.28	96.	1.10	.92	1.40	1.67	1.49	\$	1.36	1.00
1.25 1.25		1.19		1.24	_	1.43			1.20	-	1.42	-	_	-
1.05 1.04 .83 1.17 1.11 1.10 1.19 .89 1.02 1.11 1.10 1.		1.23	_	1.37	2	1.51			.95	_ ~	1.00		•	1.02
1.05 1.04 .83 1.17 1.11 1.10 1.19 .89 1.02 1.01 1.11 1.10 1.	<u>'</u>]	1.11	7	1.25	1	1.23		<u>"</u> 	1.02	<u>.</u>	1:14	_	নূ	<u>.</u>
1.06 1.12 1.23 1.14 1.14 1.12 1.22 1.09 .93 .97 .86 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.1	1.03	1.05	1.04	.63	1.17	11.11	1.10	1.19	8.	1.02	1.01	1.21	1.17	\$.
1.00 1.12 1.23 1.01 .96 1.22 1.00 .99 .93 .91 .95 1.00 -10.4 .92 .95 MOUNTING .91 .95 .94 .17.5 .99 .90 .90 .90 .90 -2.0 .99 .92 .91 .91 .91 .111 .117 .90 .90 .90 .90 .90 .90 .90 -2.0 .99 .92 .91 .91 .111 .117 .104 .91 .90 .90 .90 .90 -2.0 .99 .90 .90 .90 .114 .111 .117 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 -2.0 .90 .		1.06	1.05	1.14	1.14	1.12			26.	٠.	•	1.10	1.10	
-19.492	*	. 60	1.12	1.23	1.01	%.	1.22	1.0	6		•	\$6.	1.0	1.01
-2.0 .91 -7.0 .69 POÎNT .99 -1.13 .119 1.17 1.04 .22, 9 .99 POÎNT .90 -2.2 .97 -1.19 1.19 1.17 1.04 .81 .63 .39 1.02 .82 .90 -2.2 .97 -1.19 1.11 1.17 1.04 .81 .63 .39 1.02 .82 .90 -2.2 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90		45		RAKE	.71	727.			\$	_	RAKE	.03		
. 69 . 62 . 31 . 91 1.11 1.17 1.04 . 81 . 63 . 39 1.02 1.01 . 89 . 62 . 31 . 91 1.11 1.17 1.04 . 81 . 63 . 39 1.02 1.01 . 80 . 83 1.14 1.11 1.17 1.04 1.07 . 88 . 85 1.02 1.01 RS IN TABLE ARE PHESSURE COEFFICIENTS Cp * T	61.	16		2 ⊕	64.				1.04		•	.90	.67	1.11
1.04 .81 .63 .39 1.02 .82 1.08 .45 1.14 1.17 1.04 .81 .63 .39 1.02 .82 1.09 .45 1.14 1.11 1.17 1.04 1.07 .71 .48 .85 1.02 1.01 1.09 1.01 1.10 1.10 1.10 1.10 1.09 1.01 1.01 1.10 1.10 1.10 1.09 1.01 1.01 1.10 1.10 1.09 1.01 1.00 1.10 1.10 1.09 1.01 1.00 1.10 1.10 1.09 1.01 1.00 1.10 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	<u>. </u>	8	3		-89	1.13	 ?L_]		7	POINT	*	e P	7-
### 1.05	1.13	68.	-82	.31	.91	1111	1.17	1.04		.63	÷	1.32	.62	1.12
RS IN TABLE ARE PHESSURE COEFFICIENTS CP. T. P. P. 1.10 II.10 II.10 II.10 III.10 IIII.10 IIII.10 IIIIIIIIII		96.	67.	54.	1.08	1.14		-	".	*	.	1.02	1.01	
FROM LEFT SURVEY TO RIGHT LOOKING AFT. TO REAL LOOKEN THE SERVE COEFFICIENTS C. PTP. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VENTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT. PARE HOUSE. LOOKING AFT.	1.03	.	.83	.42	1.14	1111	1.17	1.04	1.07	и.	8.	1.18	1.16	1.04
FROM LEFT SURVEY UPPER = VENTICAL DISPLACEMENT, POSITIVE FOR UPPERS, UPPER = VENTICAL DISPLACEMENT, POSITIVE FOR UPPERS, TO RIGHT LOCKING AFT. HOWE HOWEL TABLE HOOSE, LOOKING AFT.	NUMBERS		RE PRESSURE	COEFFICIE		40		NUMBERS	TABLE	IE PRESSUR		3	H	_
HOLE HOSE LOSEN FROM THE LONG.	UPPER	IN BOXES IN VERTICAL D. HORIZONTAL T LOOKING AF	MOICATE FLO ISPLACEMENT DISPLACEMENT	DW DIRECTIC T. POSITIVE ENT. POSITI	IVE LAN FL	EES. SH DW FROM LEF 74751N		UPPER ::	IN BOXES IN VERTICAL DI MORIZONTAL LOGKING AF	OICATE FLOSPLACEMENT	DE DIRECT. T. POSITI	ION IN DEG		15
	NOTE- 1	ABLE IS SEE! OSE: LOOKING	N FROM THE	₽			RACE MOUNTING	MOTE- TA	BLE IS SEEN	FROM THE	Jour Land			PARTY NO.



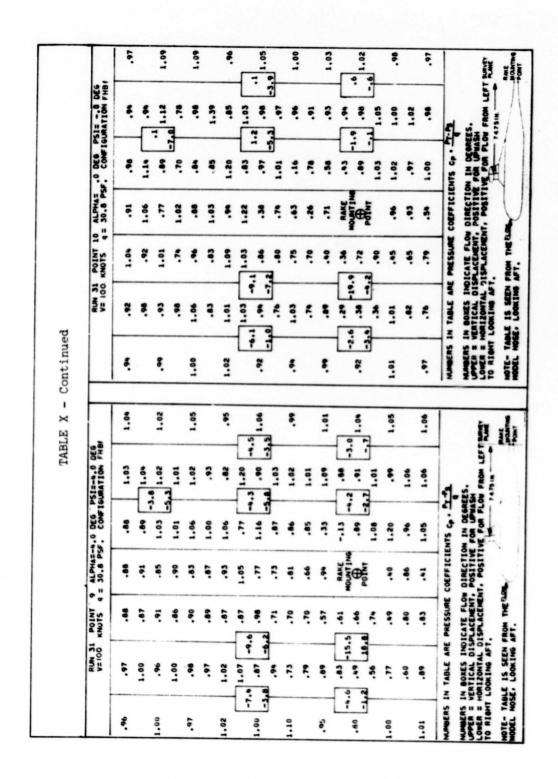


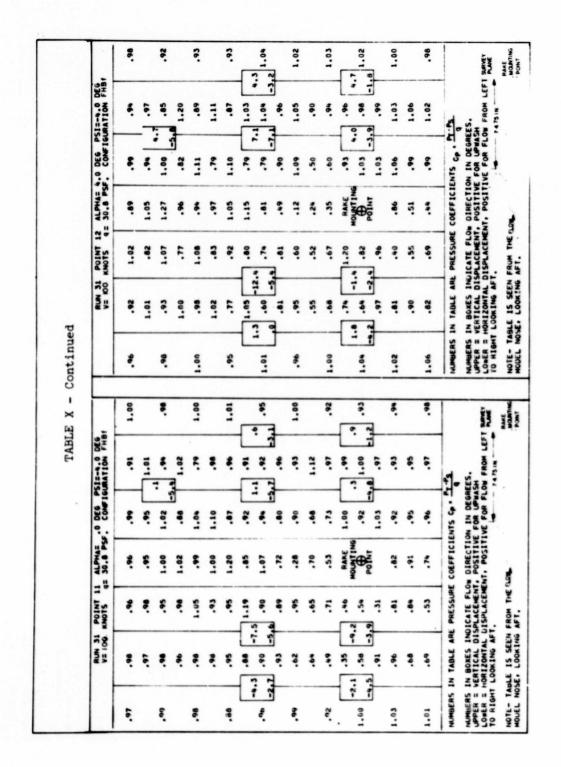


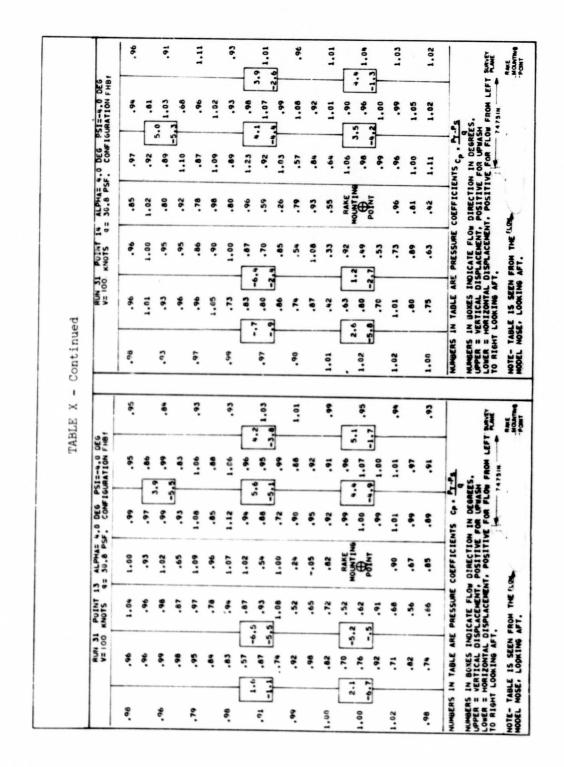




26.	RUN 31	FOINT 7 KNOTS 4=		ALPHAE 4.0 DES PSIS0 30.8 PSF. CONFIGURATION	AAT104	PHB1		NA 100 SY	FOINT	4= 30.0 PSF.	1.0 DE0	DEO PSIS -, 0 D CONFIGURATION F	
	1.01	*	1.01	1.03	**	8.	á	s.	4.	ģ	24.	1.10	1.1
_	8.	1.02	ś	_	*			ą	ŧ	ŧ	•	•	
	.95	8.	1.00		1.00	٩	ę	ŧ	•	8.	5.	1	•
_	*		ŧ	*.	•			4	*.	•	.	*	
. 16.			*		1.30	ę	*	ŧ.	4	ş	٤.	4	1.16
		8.	26.	1.06				ŧ.	۲.	ŗ.	4.	1:1	
8.	*	.67	*	2.		1.07	ŧ	6.	1.02	ş	\$	•	•
	\$.	00.1	4	29:	2.	-	L.	4		•	4.	₹ }	
1.00 1.0	1.10	*.	39.		s	ş.	\$.	6.		£.	ų	£.	1.02
	1.02	\$	1.00	*			_	•	:	•	1.02	•	
1.00	.75	4	3.	\$	ŧ	1.02	*	1.03	8.	÷	4	1.25	*
_	.0.	8.	27.	.52	•				*.	?	.57	*.	
1.01	8.	4		.53	.7	1.01	•	£.	•	ş	•	1.05	
	1.0	90.1	RAKE	24.		-	L	*	₹ [:	RAKE	•.	•	
		1.	• •		1.2	6.	8:1	1.0	8:	æ	4	1.08	1.02
-2-0	.6.	77	POINT	*	1.01	7		• •	2.		.	86.	}
1.01	8.		ş	1.02	8.	6.	00.1	ŧ	4.	•	٤.	1.00	1.01
-	1.02	ş	9.	.50	•			\$.	s.	7	1.05	1.0	
	8.	8.	15.	8.	•	8.	8.	ŧ.	5:	ş	4	:	ě.
NUMBERS IN TABLE ARE	BLE ARE	-	PHESSURE COEFFICIENTS C Pr.P.	MTS C T	47.		KUNBERS	IN TABLE A	ARE PRESSURE COEFFICIENTS	10144300 E	ENTS Co. Tr	4	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RELAT LODGIZONTA AFT	CAL DIS	ICATE FLO PLACEMENT ISPLACEME	POSITIVE NT, POSITI	FOR UPWA	EES.	LEFT SANG	JOPER :	AMMERS IN BOXES INDICATE FLOW DIRECTION IN JPPER = VERTICAL DISPLACEMENT, POSITIVE FOR COMER = MORIZONING AFT.	OICATE FL ISPLACENEN DISPLACEN	T, POSITIVENT, POSIT	INE FOR CE	. L.	
NOTE- TABLE IS SEEN FI	S SEEN	FROM THE FLOW	10	-		P. S. C. S.	AOTE - TA	TABLE IS SEEN FROM	PROM THEFLE	100	V	!	HOLATIN







.97 .96 1.03 .99 .99 1.03 .96 .98 1.01 .95 1.01 .95 1.01 .96 .98 1.01 .95 1.01 .95 1.01 .95 1.09 1.00 1.12 .95 1.01 .95 1.09 1.00 1.00 1.00 1.00 1.00 1.00 1.01 1.00 1.13 1.00 1.00 1.00 1.13 .99 1.00 1.13 1.09 1.00 1.00 1.13 .99 1.00 1.00 1.13 .99 1.00 1.13 .99 1.00 1.00 1.13 .99 1.00 1.00 1.13 .90 1.00 1.13 1.09 1.00 1.00 1.13 .90 1.00 1.13 1.00 1.00 1.00 1.13 1.00 1.00 1.00 1.00 1.00 1.00 1.13 1.00 1.00 1.00 1.00 1.00 1.13 1.00 1.00 1.00 1.00 1.00 1.13 1.00 1.00 1.00 1.00 1.13 1.00 1.00 1.13 1.0		RUN 31	PUINT I	15 ALPHA=-4.0	ONFIGURATION	RATION FHB			RUN 31 V= 100.	POINT KNOTS	16 ALPHA= .0	_	DEG PSI= 4.0 DEG	
1.01 1.00 .94 .97 .91 .96 .96 .96 .96 .96 1.01 1.03 1.03 1.01 .95 1.01 1.01 1.01 1.02 1.01 1.02 1.03 1.	00.	1.00	8.	1.00	8.	.92	6.	. 9.	8.	1.03	8.	66.	1.03	1.03
1.01 .96 .99 .92 3.0 .90 .90 .90 .90 .90 .90 .90 .90 .90 .		1.01	1.00	\$.	Ь.				8.	.93	1.03	_		
1.01 1.05 1.01 1.05 1.01 1.05 1.01 1.05 1.00 1.05 1.00 1.00	36.	1.01	\$.	6.			\$	\$.	8.	1.01	\$6.		0	1.16
1.00 1.01 1.95 1.99 1.97 1.95 1.15 1.105 1.106 1.106 1.107 1.90 1.108 1.101 1.107 1.90 1.101		1.01	ş.	.93		_			16.	1.04	1.00	1.12	-	
1.03 1.04 .97 .99 .97 .99 .71 1.05 1.15 1.05 1.10 1.00 1.07 .99 .95 .99 .71 1.05 1.05 1.06 1.05 1.06 1.07 1.02 .99 .95 .99 .	.02	6.	1.13	86.	ě.	16.	8.	56.	1.0*	06.	1.06	.87	1.03	1.08
1.03		1.0*	.97	\$.	.97	8.			.63	1.08	1.00	1.07	06.	
97 -5.0	.07	1.03	1.01	\$6.	\$.	17.	1.05	1.15	1.05	1.16	1.01	1.13	1.02	.82
62 1.25		96.	_	1.06	L	8.			.82		8		.76	
1.01 1.05 1.09 1.07 1.04 1.02 1.09 1.07 29 1.07 1.04 1.02 1.09 1.07 29 1.07 1.04 1.03 1.09 1.07 40 1.05 1.00 1.01 1.01 1.00 1.00 1.00 1.0		.82		96.	<u>የ</u>	.97			1.00		69.		1.26	76.
62 1.25 .96 .97 1.04 .92 .99 .81 29 .83 1.01 1.01 .90 .96 1.32 .99 63 1.12 1.01 .90 .96 1.32 .94 97 1.06 1.13 .99 1.07 98 1.01 .96 .95 .99 99 1.01 .94 .95 .97 .96 .95 .96 .95 99 1.01 .96 .96 .96 .92 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .97 90 1.01 .96 .96 .96 .96 .97 90 1.01 .96 .96 .96 .96 .97 90 1.01 .96 .96 .96 .96 .97 90 1.01 .96 .96 .96 .96 .96 .96 .96 .96 .96 .96	,	٦ .	-	.92	}	2.	1]			1.02	1.09	2.	1
1.01 1.01 .90 .96 1.32 .94 1.07 2.0 .96 1.32 .94 1.07 3.09 1.07 3.09 1.07 3.09 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1	8.	.95	1.03	60.	.79	.62	1.25	* .	.97	1.0*	.92	66.	19.	1.09
1.01 1.01 .90 .96 1.32 .99 657 3.9 .84 1.00 1.5 1.00 1.5 1.00 1.00 1.32 .99 67 3.9 .85 1.02 .96 .67 .46 .96 .95 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.01 .96 .71 .70 .77 1.02 .97 .95 1.01 1.03 .62 .56 1.03 .06 .96 .95 1.04 .06 .06 .06 .06 1.05 .06 .06 .06 1.06 .06 .06 .06 .06 1.07 .06 .06 .06 .06 1.08 .08 .08 .08 .08 1.09 .95 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0		96.	.59	.57	.83				.97	1.06	1.13	\$.	1.07	
1.00 -1.1 .95 -2.8 1.03 MOUNTING .99 -22.6 .99 92 .85 1.02 .96 .67 .46 .96 .97 94 .99 .99 .99 1.01 .96 .71 .76 .97 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. P.P. NUMBERS IN HOMES INDICATE FOR DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT. ***A COMMISSION OF THE FIGURE OF THE FOR THE	8	1.03	.51	.73	8.	1.29	. 63	1.01	1.01		96.	1.32	š .	6.
.97		.95	_	RAKE	87.	.63			56.		RAKE	64.	.59	Γ:
.92 .65 1.02 .96 .67 .46 .96 .92 .92 .99 .99 .99 .99 .77 .96 .99 .99 .99 .99 .99 .99 .99 .99 .99		8		•	4	.67			1.0	7	⊕	8.	3.	1.08
.92 .85 1.02 .96 .67 .46 .96 .97 .77 .98 .97 .77 .98 .77 .98 .77 .99 .99 .77 .96 .71 .79 .77 .77 .77 .79 .99 .99 1.01 1.03 .62 .77 .77 .77 .77 .77 .77 .77 .77 .77 .7	_	٦ .	_		3.	_		j 	_	7_		.s.	.72]_
*** **********************************	- 02	*	6.		8.	.92	. 85	1.02	96.	.67	9.	96.	.92	1.14
NUMBERS IN TABLE ARE PHESSURE COEFFICIENTS Cp. PT-PS. NUMBERS IN TABLE ARE PHESSURE COEFFICIENTS Cp. PT-PS. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER # VERTICAL DISPLACEMENT, POSITIVE FOR PHASH TO RIGHT LOOKING AFT. NAME NOTE- TABLE IS SEEN FROM THE YOUR.		8.		1	.52	\$			10.1	*	.71	.78		
NUMBERS IN TABLE ARE PHESSURE COEFFICIENTS Cp. P. P. P. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWISH LOWER = MONIZONIAL DISPLACEMENT, POSITIVE FOR PLOW FROM IN PART. TO RIGHT LOOKING AFT.	¢.	10.1	ŧ.	.67	4	•	š.	\$	8.	1.01	1.03	.62	\$5.	1.00
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER # VENTICAL DISPLACEMENT, POSITIVE FOR UPHASH LOWER # MORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM IN - MARK NOTE- TABLE IS SEEN FROM THE 108.	UPBER	S IN TABLE	AHE PRESSU	E COEFFICIE	. 3	4-1			TABLE	IRE PRESSUR!	E COEFFICI	3	4	
RAME NOTE- TABLE IS SEEN FROM THE FLOW.	PPER:	S IN BOXES T VENTICAL T VENTICAL T LOOKING	INDICATE FL DISPLACENEN L DISPLACEN	OB CIRECTION OF POSITION	N IN DEGR	. 5	İ	UPPER =	IN BOXES I VERTICAL C MORIZONTAL	INDICATE FLI DISPLACEMENT DISPLACEMENT	DW DIRECTION TO POSITION	ON IN DEGR E FOR UPWA IVE FOR FL		
	OTE-	TABLE IS SE	EN FROM THE	9	ı		PANE WOLFFING	MOTE- TA	DE IS SEE	IN FROM THE	ē.	1		PAKE

29. 39. 39. 39. 39. 39. 39. 39. 39. 39. 3	2. 4	1.02 .98 .98 .99 .99 1.01 1.01	.92 .93 -2.5 .93 -96 .95 -95 -1.16 -10.8		96. 66. 66.	.96 .98 .98 .98 .98 .98 .98 .99 .99 .99 .99	96. 96. 96. 96. 96. 96. 96.	.97 .99 .99 .1.01 .98 .98 .63	96. 99. 100.1 96.			
2.5 2.6 3.0.1 3.0.1 5 6 6 6		.95 .98 .92 .99 .101 1.01 1.04					6. 6. 8. 6. 1		.99 1.00 1.01	•	1.00	1.03
86		.98 .92 .99 1.01 1.02 1.04		.94 .94 .75 .75			6. 6. 6. 0. 1		1.00	•	1.03	
2.69 8.01 8.03 8.09 8.09 8.09		.92 .99 1.01 1.02 1.24	_				8. 8. 9. 1		1.00	لـ	1.06	1.08
99. 1.03 2.5- 69. 69.		1.01					8. 6. 00.1		1.01	1.05	1.03	
		1.01					96. 1.03	-	86. 3	1.07	1.08	1.03
-3.2		1.02					.96	-	8	1.04	1.02	
-3.2 .89		1.04					96.	-	. 40	.97	06.	.97
66.		1.24					1.03		.87	10.	.62	
	_	-		J	 a	2			.93	1.00	6.	1.04
.6.	1.08	.72	74.				.97	96.	1.07	16.	28.	~
96. 66.	.88	.45	.	.52	1.05	96.	.90	.93	\$6.	.82	.82	.93
*6.	.87	•36	.71	.78			96.	9.		.70	19:	
86.	96.	.58	1.05	.70	.95	.95	.97	8.	. 41	99.	19:	66.
16.	.87	RAKE	.46	.52	_	L	6.	3.	RAKE	77.	.03	_
86.	1.14	Φ,	.65 69.	.78	8.	1.00	. 96.	76.		.73	1.05	1.00
.97	8.		.95	54.	a	2.0	 	1.02	POINT	.65 J	%: Z:	<u></u>
1.03 .92	1.00	64.	*9.	1.15	ð.	1.04	.93	1.01	.50	.97	.92	1.00
96.	96.	.12	.7.	.91			1.01	1.00	.80	1.00	1.12	
.99	.92	98.	99.	1.02	. 95	1.00	8.	1.04	**	.70	.95	1.03
NUMBERS IN TABLE ARE	PRESSURE	COEFFICIENTS	ITS Cp . 17-13	go!		NUMBERS	IN TABLE AF	ARE PRESSURE COEFFICIENTS C	COEFFICE	ENTS C. P	7.18	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW F RIGHT LOOKING AFT.	ICATE FLON PLACEMENT, ISPLACEMEN	POSITIVE Tr. POSITIVE	DISPLACEMENT, POSITIVE FOR UPWASH SPACEMENT, POSITIVE FOR UPWASH FROM LEFT SAWVEY TO STEAM FROM THE SAWVEY THE SAWVEY TO STEAM FROM THE SAWVEY TO STEAM FROM THE SAWVEY THE S	FROM LEFT	SURVEY PLANE	UPPER = V	ERTICAL DI	MUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH SOUTH = MONITON AT SEPLACEMENT, POSITIVE FOR FLOW FROM	T, POSITIVENT, POSIT	ON IN DEGR	EES. SH FROM LEF	LEFT SURVEY
NOTE- TABLE IS SEEN HODEL NOSE, LOOKING	FROM THEFLOW				MOUNTING	NOTE - TAB	TABLE IS SEE!	IS SEEN FROM THE FLOW	FLOR		7475IN.	PAKE MOUNTING

	RUN 31 V= 100.	FOINT 19 KNOTS Q	9 ALPHA= 4.0		DEG PSI= 4.0 DEG CONFIGURATION FHB!	9.0	_	RUN 31 V= 100	POINT 2	0 ALPHA= 4.0	F. CONFIC	DEG PSI= 4.0 D	DEG FHB1	
.97	36.	1.04	16.	%.	76.	ą.	.93	6.	8.	.93	96.	.97	-	.8
	\$6.	.63	1.05	1.03	·.			6 .	* .	.97	1.01	•		
36.	1.03	1.03	96.	٠. :	27.	.87	6.	1.03	.9	.97	.07	.97	-	1.06
	1.00	1.04	1.02		1.05			.80	8.	16.	·.			
.88	99.	%	1.06	.7.	8.	1.06	.85	.97	1.00	06.	1.08	1.05	<u>-</u>	1.29
	1.04	.95	86.	09.	1.10			.97	.81	16.		99.		
.01	%.	1.06	.67	.78	.59	69.	ŧ.	1.00	%.	.79	1.00	16.		.95
	*	%.	1.06	.95	ار در			_ '%. _	1.0	.97	1.20	.55	$\{ \cdot \}$	
.97	₹6.	1.06	.92	.71	64.	3.0	7.00	1.9	.6	1.13	%.	-6.2	9	.93
	.91	۶. ع	.59	1.00	ء د.	7	-	3:0 .9.	1.5	.76	•;	1.07	-	
96.	96.	.85	1.08	94.	.54	86.	96.	1.03	.41	.73	.90	.32		.92
	6.	.91	97.	.93	99.			1.00	.02	.72	.59	.63		
66.	1.01	1.04	.41	.30	.57	.92	8.	.93	1.08	.25	.95	15.		.92
	66.	1.05	RAKE	3.	.82			*. -	8.	RAKE	.60	7 79.	Γ	
1.02	2.9 1.04 4.2	1.02		.92 -10.	37.		1.01	.95	3.8	MOUNTING MOUNTING	0 4.	16.		66.
	96.	*. -	ž O	4.	. 18.		_	10.1	.97	POINT	.55	92.	-2.0	
66.	1.01	66.	.80	.62	96.	. 85	1.00	66.	6.	.47	.42	18.		.97
	1.03	66.	74.	.37	.43			1.00	%	\$.52	.57		
96.	1.00	86.	.52	.70	.65	6.	1.01	1.01	86.	.60	64.	•59	<u>-</u>	1.02
HER	NUMBERS IN TABLE ARE	PRESSURE	E COEFFICIENTS	NTS Co. P.	I's		NUMBERS	IN TABLE	ARE PHESSURE	E COEFFICI	COEFFICIENTS Cp : Pr-PS	ار م		
ER ER	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UMPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PLANET OR REALT LOOKING AFT.	SPLACEMEN'SPLACEMEN'S	DW DIRECTION T, POSITIVE ENT, POSITI	N IN DEGRE FOR UPWAS	EES. SH FROM LE	FT SURVEY	UPPER = 1	IN BOXES VERTICAL (HORIZONTAL	48 IN BOXES INDICATE FLOW DIRECTION IN DEGREES. = VERTICAL DISPLACEMENT, POSITIVE FOR LUPWASH = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PANKE = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT PANKE	T. POSITIVE	ON IN DEGI	SH FROM L	EFT SURV	پي
Ļ	NOTE- TABLE IS SEEN	FROM THE FLOW	FLOW.			RAKE	NOTE - T	ABLE 15 SEN	NOTE- TABLE IS SEEN FROM THE FLOW.	FLOW	`\		RAKE	ž

	RUN 31 V= 100.	POINT	21 ALPHA= 4.0 q= 30.8 PSF.		DEG PSI= 4.0 DE	DEG FHBf		RUN 31 V= 100	POINT	22 ALPHA= .0		DEG PSI=-4.0 DI	DEG FHBf
96.	86.	.95	66.	96.	1.00	.95	66.	86.	68	10.1	1	8	-
	%.	6.	1.00	66.	16.			%.	1.03	.78		¥ ;	
.92	ŧ.	.93	66.	1.00	96.	96.	.97	6.	68.	8		1:1	
	.85	96.	%.	*.	.87			1.05		8	. ·	च	
96.	68.	*6.	.92	66.	99.	1.03	96.	080		1.05	. %	1.03	-
	96.	.97	ě.	.67	.73			1.03	98.	1.01	1.38	1.05	:
æ. '	96.		٤٠.	• 50	69.	16.	1.06	1.02	86.	1.21	99.	1.03	1.09
_	3.0	1.8	.93	66.	79.	-	L'	*6.	% .	.61	1.02	7 86.	: -{
		7	.72	. 75	ž.	1.00	1.02	1.01	-6.5	67.			2
			89.	6 .	ر د ا	-	<u>. </u>	1.03	.75	99.	ş- 	_	-3.2
.97	1.02	1.04	.84	.63	.37	1.04	•95	9.	6.	69.	.57	.79	1.00
	1.04	1.02	94.	36.	.36			\$.	.57	1.26	09.	%	
10.1	1.03	1.05	17.	99.	.53	1.06	%	87.	ě	*9.	27.		
	96.	§ .	RAKE	*9			_	-\-	-[RAKE	9	_ ا ا	: -{
1.03			⊕g	5.		1.00	1.02	3.	18.7	POINT ING	î	1.01	6. 6.
1.02	%	96.	.67	.59	3.	•	1.01	•				1.02	
	86.	*	.90	•	1.04				9	8		ę.	š.
96.	56.	1.00		.58	.53	.97	96.	8.	. 19.		. 6.	§ 6.	·.
ERS	NUMBERS IN TABLE ARE	PRESSURE	COEFFICIENTS	NTS C T	1		NUMBERS	IN TABLE AF	ARE PRESSURE COEFFICIENTS	COEFFICIE	- -	4	
R = 16HT	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPLICNER = HORIZONTAL DIS TO RIGHT LOOKING AFT.	SPLACEMENT SPLACEMENT SISPLACEMENT	W DIRECTIO , POSITIVE NT, POSITI	FOR UPBA	CATE FLOW DIRECTION IN DEGREES. PLACEMENT, POSITIVE FOR UPWASH PLACEMENT, POSITIVE FOR TOWN LEFT SAMMY THE STATEMENT AND THE STATEMENT A		UPPER = LOWER # 1	IN BOXES INVERTICAL DI	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASATO REAL DISPLACEMENT, POSITIVE FOR FLOW FROM	W DIRECTION POSITI	N IN DEGRE	P FROM LE	LEFT SURVEY
¥ 9	NOTE - TABLE IS SEEN	FROM THE ELDIN	101			MAKE	NOTE- TAE	TABLE IS SEEN	IS SEEN PROM THE ELON			7475IN.	

	RUN 31 V= 100.	POINT 23 KNOTS 9	= 30.8 PSF.		DEG PSI=0 DE	DEG FHBf		KUN 33 V= 125.	FULNT	4 ALPHA=	e .	DEG PSI=0 DEG CONFIGURATION FHBF	
₹.	%.	.97	-92	1.00		.97	6.	56.	.97	4.	96.	76.	6.
	.97	.97	1.03	6.	1.00			.97	.97	96.	%·	1.0	
96.	6.	6.	16.	1.01	e. 1-	8.	.97	.97	.95	.97	86.	76.	1.00
	1.00	.95	1.00	89.	ة. ج			96.	.96	1.01	%. "	1.01	
.85	6.	1.02	.83	.93	5.	1.08	.87	6.	%.	*6.	86.	.92	1.02
	₩6.	· 6.	*6.	.01	1.09			.97	.97	96.	10.1	06.	
1.02	1.03	1.03	66.	1.10	69.	98.	06.	. 65	6.	86.	.97	1.02	.79
	1.12		1:14	99.	1.26			.84		.83	.92	*. *.	Ţ.
<u>.</u>	98.		ě	1.11	-2.8	8.	66.	67.	.88	.88		.76	. 95
_	1.03	98.	ě	.51	1.00	• <u>•</u>	J 	'] *. ₹}	10.1	.79	₹ ••	%: 	-
96.	18.	.85	.82	.56	.90	.97	96.	.97	.79	1.04	69.	1.03	₹6.
	98.	18.	89.	ŧ.	.31		,	.81	*9 •	.78	.31	69.	
86.	. 65	67.	9.	.30	.20	1.01	1.01	.38	• 56	.92	,54	.57	1.00
	.82	3.	RAKE	.39	۲.		L		£#.	RAKE	• 29	٠. نو	
1.03	54.	.36	₹ •	6.	.39	 	1.01	.79	18.	Ф <u>г</u>	.82	.83	.98
יי	89.	92.	2	1.09	*.		<u>'</u>]	98.	3. -		.62	1.00	_
1.02	96.	•5•	.29	ŧ.	.93	*.	1.02	56.	.60	**	₩6.	.93	1.00
	1.11	%.	.52	1.00	06.			*6.	.79	.37	1.00	66.	
96.	86.	8.	.55	.75	%.	6.	6.	.95	.97	.31	.93	.97	1.02
ER	NUMBERS IN TABLE ARE	RE PRESSURE	COEFFICIENTS	ENTS Co. PPS	وم		NUMBERS	IN TABLE AF	ARE PHESSURE	E COEFFICIENTS Cp :	ENTS CP = P	P. P.	
E 8 8 5	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOARE = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	NDICATE FLO ISPLACEMENT DISPLACEME	N DIRECTION POSITIVE	ON IN DEGR	EES. SH FROM LE	LEFT SURVEY PLANE	NUMBERS UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR PLOW FROW TO RIGHT HOOKING AFT.	VDICATE FLO ISPLACEMENT DISPLACEMENT	OW DIRECTION T. POSITIVE	ON IN DEGR E FOR UP A IVE FOR FL	EEES. ISH OW FROM LEFT	FT SURVEY
	NOTE- TABLE IS SEEN	N FROM THE FLOW	10		N. C.	MOLATING	NOTE - TA	HOTE- TABLE IS SEEN FROM THE FLOW	FROM THE	FLOM			RAKE

T SURVEY	NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp. PITPS. NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SHAWE TO RIGHT LOOKING AFT.	INTS CP . PT-PS ON IN DEGREES. FOR UPWASH IVE FOR FLOW FR	COEFFICIENTS W DIRECTION IN POSITIVE FOR	ARE PRESSURE INDICATE FLOIDISPLACEMENT, LDISPLACEMENT, ART	NUMBERS IN TABLE ARE NUMBERS IN BOXES IND UPPER = VERTICAL DIS LOWER = HORIZONTAL D LOWER = HORIZONTAL D	NUMBERS NUMBERS UPPER =	LEFT SURVEY PLANE	EES. SH FROM LEFT	COEFFICIENTS C. TIPS OIRECTION IN DEGREES POSITIVE FOR UPWASH IT POSITIVE FOR FLOW	OBECTION POSITIVE	CATE FLOW SPLACEMENT,	NUMBERS IN TABLE. ARE PRESSURE COEFFICIENTS C. TS. VUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRES. LOWER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH TO RIGHT LOOKING AFT.	2 222
. 45	26.			.92			1.05	1.01	18.	COEFFICIE	PRESSURE	NUMBERS IN TABLE ARE	2
	.87	.88	.47	1.02	.95			1.04	.87	000.	. 84	1.02	
.93	• 95	.9	.47	1.04	1.03	6.	1.01	.93	.89	.65	1.08	• 95	
	1.05	1.02	N TOL	 	8.1	-2.0		.92	.62			96.	
76.	. 6.		MOCAT ING		£.	1.04	1.5	.65	1.05	POUNT ING	.1.0	.59	-3.3
			RAKE		ا چ	4	_	.88	.s.	RAKE	.55	1.06	L
96.	.93	69.	.63	.15	.58	86.	66.	.14	.37	7.	•5•	.23	
	и.	09.	96.	65.	.91			1.00	.74	.87	.82	.47	
96.	*6.	84.	98.	96.		1.03	96.	94.	.63	.83	.62	.91	
• <u> </u>	1.04	.59	67.	1.01	ن: ۶۰	_		54.	.62	.91	.82	1.06	
6.	68.	1.00	06.	.s.	7 1.04 -4.3	66.	96.	1.09	1.07	.89		1.06	
_	7.0		.92	*8.		L	J.	-95	.6.	.87	* .	.95	Ŀ
66.	96.	.87	.91	.95	1.02	66.	86.	1,05	1.03	1.02	.87	06.	
	06.	.95	.95	1.00	36.			.93	₩6.	.97	1.00	86.	
96.	.95	66.	1.00	1.03	1.00	1.00	96.	.92	1.00	96.	.97	.95	
	.93	.97	1.01	66.	66.			1.01	1.00	76.	.97	.98	
.95	.93	.95	66.	.97	1.00	ô.	1.00	.97	1.04	1.00	96.	.97	
	86.	*.	1.00	1.00	6.			71.02	.98	66.	.97	66.	
.96°	.93	86.	1.01	86.	86.	60.	1.03	1.00	86.	76.	96.	96.	
*	DEG PSI=0 DEG	0	ALPHA= . = 48.1 PSF.	RUN 33 POINT 6 V= 125. KNOTS 9:	RUN 33 V= 125.			CONFIGURATION FHBf	O DEG PS	ALPHA= .0 D	KNOTS 4	KUN 33 V= 125	

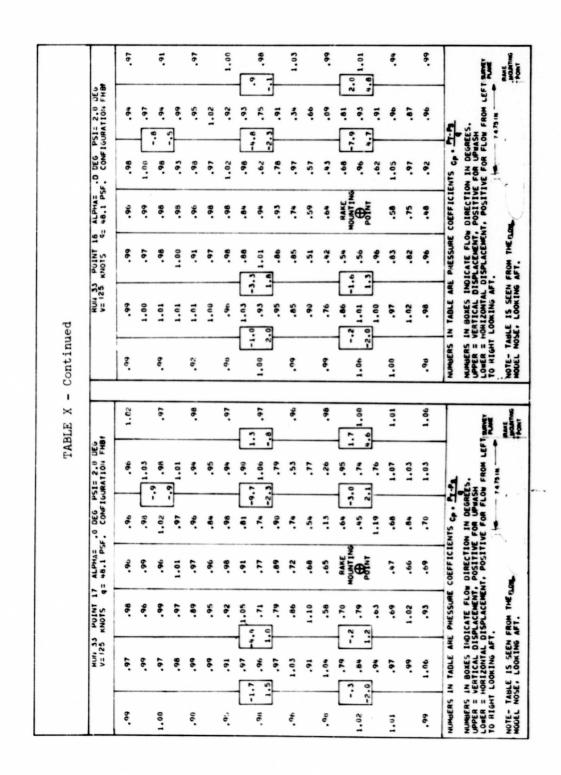
TABLE X - Continued	JINT 7 ALPHA= 4.0 DEG PSI=0 DEG PSI0	.96 .94 .95 .96 .95 .95 .95 .95 .95 .95 .95 .95 .95 .95	86. 76. 86.	1.00 .93 -2.8	, 95 . 96 . 76	96. 99. 100. 100. 100. 100. 100. 100. 100.	16. 36.	-[-	.80 .45 2.8 .6784	.36	76. 10.1 07. 77. 19. 81.08	.36 .76 .97 .97 .98 .99 .99 .69 .28 .29 .97 .97	.89 4.4 1.03 1.11 2.4 .96 -1.6 MOUNTING .59	.68 1.79 98 1.89 98 1.00 1.30 98 1.98	. 66 27 92 98 1.00 . 98 1.01 89 93 92 93 92 93	.85 .23 .67 .97 1.01 1.01 .95	46. 96. 17. 88. 37. 48. 49. 49. 49. 48. 49. 50. 48. 49. 50. 48. 49. 50. 48. 49. 50. 48. 49. 50. 48. 49. 50. 48. 50. 48. 50. 48. 50. 50. 48. 50. 50. 50. 50. 50. 50. 50. 50. 50. 50	COEFFICIENTS CP : TT-PS	S. UNMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGRE UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPASS LOWER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLO TO RIGHT LOOKING AFT.	NOTE- TABLE IS SEEN FROM THERDOW, MUDIEL NOSE, LOUKING AFT.
	FOINT 7 KNUTS 4=	96.	.97	ŧ.	8. 8	. 6.	۲.			65.	.15	.36	ê. î .	٠.	99.	.85	*8.	PRESSURE C	CATE FLOW LACEMENT, SPLACEMENT	FROM THE FLOW
-	RUN 33 V= 125. K	1.00	1.00	1.01	1.01	. %	1.01	66.	1.5 1.00		.53	0.	26.	.87 (8:	1.05	66.	.93	NUMBERS ON TABLE ARE	FIN BOXES INDI	NOTE- TABLE IS SEEN F
		1																		

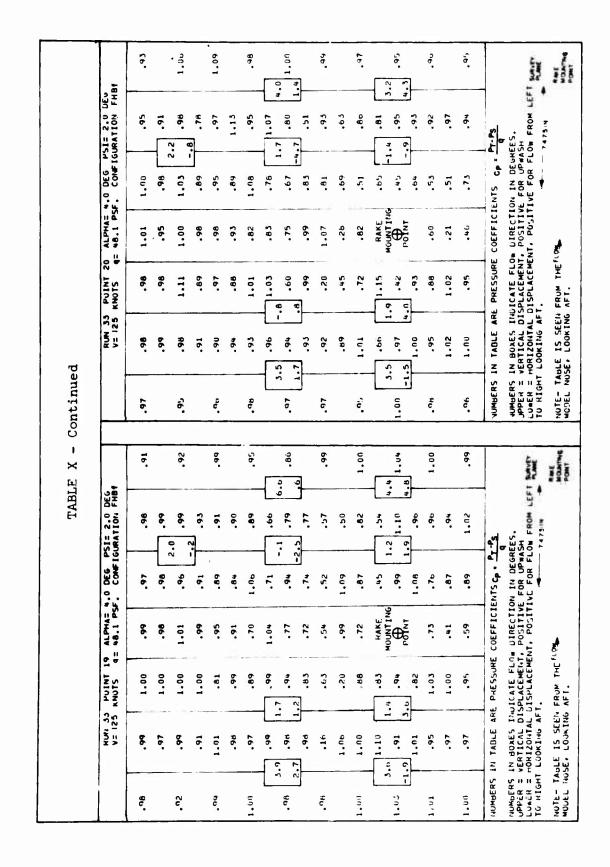
. 96 . 96 . 97 . 98 . 96 . 96 . 96 . 96 . 96 . 96 . 98 . 98	1	RUN 33 V= (25	KNOTS 4	ALPHA= 4.0	CONFIGURATION		DE G FHB1		RUN 33 V= 125.	POINT 1 KNOTS	0 ALPHA= . q= 48.1 PSF.	0	DEG PSI=-4.0 DEG CONFIGURATION FHB	96
3.2 3.2 3.2 3.3 3.4 3.5 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6	76.	86.	76.	1.00	86.	%.	.89	%.	86.	.97	.97	.92	86.	%.
3.5.2 -3.3 -3.3 -3.5		.97	1.00	.93		_			%.	%.	.97	.97		
1.01 1.01 1.00	96.	6.	76.	.97			%.	86.	.97	.93	.97	.8.	26.	*
1.01 5.2 3.3 9.7 1.00 1.00 1.00 9.92 9.92 9.95		.97	1.02	.97	_	_			86.	96.	-95	%.	* .	
5.2 -3.3 1.00 1.00 -3.3 -9.3 -	.92	.97	.97	6.	.93	96.	1.01	₹.	36.	.93	66.	96.	96.	.97
2.5 2.5 1.00 1.00 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9		.78	98.	1.00	.92	1.00			1.01	1.08	.93	06.	*6 •	
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	96.	.81	1.02	86.	1.03	96.	.97	.93	*6.	06.	6.	66.	.	%.
75. 2. 3. 4. 9. 1. 00 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	L	.0		1.03	Ц				.89		1.02	. 76.	76.	Γ.
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		1.06		%:		96.			.67		.92	.01	.96	66.
1.00 4.9 1.1.8 9.92 9.95 9.95	<u>.</u> 1	1.07	9	.67	_	- *	2.3	<u> </u>	19.	_	.51	 	*. •	<u>-</u>
96. 99. 99. 99. 99. 99. 99. 99. 99. 99.	36.	.72	.54	.19	.73	96.	1.00	96.	• • •	.78	*	.50	.91	66.
98 . 98 . 98 . 96 . 96 . 96 . 96 . 96 .		19.	.26	.53	.17	*			۲.	99.	.73	.70	٠.	
9. 9. 9. 95 . 95 . 95 . 95 . 95 . 95 .	.53	\$6.	66.	.33	%	96.	8.	.97	·••	99.	99.	.72	.63	66.
. 95 . 95 . 95	L	.51		RAKE	1.13			Li	49.		RAKE	.91	%· [.	√:
96. 99.		96.	•		1.02	1.01			.43		0	%	6.	36.
96. 96.	1	_	<u>.</u>	NIO		- %.		<u>'</u>]	*.]	-		%.	1.02	<u>.</u>
26.	10.1	.37	.52	1.16	.95	96.	96.	6.	.63	98.	96.	1.00	66.	%.
26°		.57	1.05	.63	1.03	.97			1.25	1.08	00.	1.00	66.	
LEFT: QUINTY	96.	1.02	٠.	.53	16.	6 .	.95	96.	٠,	95.	.22	.95	%.	š.
LEFT: WINEY	NUMBERS	IN TABLE AR		COEFFICIE	INTS Co. T	ন				E PRESSURE	COEFFICE	COEFFICIENTS C Tr.PS	5	
	NUMBERS UPPER =	IN BOXES IN VERTICAL DI HORIZONTAL	OICATE FLO	POSITIVE	FOR UPWAS	ES.	LEFT SURVEY	NUMBERS UPPER = LOWER = TO RIGHT	VERTICAL DI HORIZONTAL LOOKING AF	DICATE FLC SPLACEMENT DISPLACEMENT	W DIRECTION POSITION POSITION	ON IN DEGR	EES. SH OW FROM LE	LEFT SURVEY
NOTE TABLE IS SEEN FROM THE FLOW.	NOTE- T	ABLE IS SEEN	FROM THE	101			PAKE POLETING	NOTE - TA	IBLE IS SEEN	FROM THE	101			MOUNTING

	RUN 33 V= 125	POINT I	II ALPHA= .0		DEG PSI=-2.0 DEG	o t o		RUN 33 V= 125.	POINT 12 KNOTS 4	ALPHA=	٠.	DEG PSI=-2.0 UCCONFIGURATION FI	UE 6 FH B1
6.	.95	16.	%:	.97	ē.	16.	66.	96.	1.00	86.	* 6.	.93	*6.
	6 .	.97	1.00	ş.				96.	%.	.97	86.	٠. دو.	
.97	96.	96.	*	1.03	1	6.	96.	1.00	6.	.95	.97	68.	06.
	*6.	.97	1.03	8.	1.03			96.	6.	\$.	6.	٠. چ	
₹.	.95	1.02	68.	96.	.92	66.	36.	.97	66.	.97	96.	.91	96.
	.92	.97	.92	.89	₹.			66.	6.	86.	.93	1.00	
.91	.92	10.1	6.	₩6.	. 66.	96.	6.	96.	.95	.97	1.00	1.08	1.02
	.8.		06.	1.30	ان نون	_ - - -			*. 	.92	1.06		\ \frac{1}{2}
96.	96.	. 94	96.	. 69.	1.04	96.	86.	1.00	1.07	16.	98.	%	96.
-1.2	5.		69.	† •	٠ • •	#.Z-		١٠٠٠		.57	.52	8.	-
.93	89.	1.13	67.	69.	.74	1.00	.97	1.02	1.03	.82	.52	.67	1.02
	.76	06.	ŧ.	.65	.87			₩.	1.04	₹.	•20	1.01	
36.	• 50	1.14	•56	1.00	1.05	36.	86.	.87	.93	99.	1.01	1.00	66.
L	.73	.58	RAKE	84.	ا. دور			7.22	٠٠ ا	RAKE	.17	.96.	-[:
 	.72	84.	WOUNTING HOUNTING	1.04	1.05	1.00	1.01	84.	.52	ξ Φ	• 95	1.01	36.
2.5-	.,	.13.	POINT	.92	_%. <u>-</u> %.	·	<u>-</u>	.30	24.		1.09	*. 	-
6.	.97	٠7.	06.	96.	.95	76.	1.03	1.14	.50	•55	66.	96.	76.
	1.03	.81	.39	₩6.	*6.			.92	.59	69.	1.04	1.00	
& .	1.04	67.	.61	1.00	1.03	66.	66.	96.	٠76	.80	1.01	.97	.93
HERS 1	NUMBERS IN TABLE ARE	E PRESSURE	RE CUEFFICIENTS	ENTS Co. PT-PS	3		NUMBERS	IN TABLE AR	ARE PRESSURE COEFFICIENTS	COEFFICIE	٠	Pr -Ps	
ER = VER = NER = HERE	HUMBERS IN BOXES IND UPPER = VERTICAL DISCUPER = HORIZONTAL DISCUPER TO RIGHT LOOKING AFT	UICATE FI SPLACEMER UISPLACET	HUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES, UPPER = WERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LUNER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT THENT LOOKING AFT.	ON IN DEGR FOR UPWA	SH FROM LE	EFT SURVEY	UPPER = LOWER = TO RIGHT	NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES. UPPER = VERTICAL DISPLACEMENT, POSITIVE FOR UPWASH LOWER = HORIZONIAL DISPLACEMENT, POSITIVE FOR FLOW FROM TO RIGHT LOOKING AFT.	DICATE FLO SPLACEMENT DISPLACEME T.	W DIRECTION POSITIVE	ON IN DEGR	EES. SH OW FROM L	LEFT SURVEY
E- TAB	NOTE- TABLE IS SEEN	FRUM THE FLOW	FLOW			RAKE	NOTE- TA	TABLE IS SEEN	IS SEEN FROM THE FLOW	•			MOUNTING

1.00 1.00		RUN 33 V= 125.	PUINT	13 ALPHA= .0 q= 48.1 PSF.	.0 DEG P	DEG PSI=-2.0 DE	DEG FHBf		RUN 33 V= 125	3 POINT 14	HALPHA= 4.0		DEG PSI=-2.0 DEG	
1.00 1.00 1.00 1.00 1.00 1.00	96	76.	.95	8.	1.04	1.00	1.00	86.	86.	76.	76.	.95	68.	*6.
1.00 1.00 1.02 1.02 1.00 1.00		66.	96.	56.	.98	_			66.	1.00	86.	_	٠. *•	
99	8.	66.	%	.95			1.00	66.	66.	96.	.92	• 1	06.	.92
. 95 . 99 . 99 . 99 . 99 . 99 1.01 1.00 1.00		66.	76.	*6.	_				1.00	%	*6.	2	₹.	
. 99 . 1.2 1.00 1.00 1.00	.07	96.	.89	96.	.91	.97	- 95	66.	.81	.97	1.00	*6.	1.01	.92
.599 .9999 .10099		1.02	*6.	.92	.95	.92			06.	1.00	.93	66.	.95	
1.02 1.02 1.02 1.00 1.00	70	.70	.95	.92	1.00	.97	86.	.97	1.39	.89	1.07	.92	.93	96.
. 99 . 99 . 99 . 99 . 1.01 . 1.02 . 1.00	L	96.		16.				L		_	66.		76.	1
1.02 1.02 1.00 1.00		96.	, 1	.89		1.01) 4	_	1.19		• 56		.76	10.
1.02 1.02 1.00 1.00	_	1.16	9	.72	_		-	_	_	_	.31	_	. 8. 	-1-0
1.02 1.00 1.00 1.00	66	.78	.70	.35	.70	96.	66.	86.	¥6.	69.	st.	.32	96•	66.
1.02 1.02 1.00 1.00		66.	.74	•20	.78	•6•			1.07	04.	1.28	.78	1.09	
1.2 1.02 1.00 1.00	10.	.81	.75	84.	. 45	.93	66.	96.	.27	88.	.62	.83	• 95	ž.
1.02 1.02 1.00 1.00	L	==		RAKE	*6.					_	RAKE	1.12	₽ 96.	-
1.02 1.00 1.00		.72	•	E O	.86			_	_		SN INC	1.00	6.	5.1
1.02 1.00	<u> </u>	1.00	=	POINT	_			_		4	POTNT	₹.		<u>.</u> _
1.00	0.1	.78	,34	61.	.88	1.03	1.02	1.02	1.00	10.1	.78	86.	.97	.92
1.00		1.14	.87	• 50	1.01	1.01			10.1	. 43	*	.93	96.	
LEFT SURVEY	66	96.	.80	54.	1.05	1.03	1.00	8.	1.00	.53	05.	.95	.92	36.
LEFT SURVEY	JMBERS	IN TABLE ARE	1	COEFFICI	8	8				RE PRESSURE	COEFFICI	ENTS C.	4	
	DMBERS	IN BOXES IN VERTICAL DI: HORIZONTAL (LOOKING AF)	DICATE FLO SPLACEMENT DISPLACEME T.	POSITIVE NT. POSITIVE	ON IN DEGR	SH FROM LE	FT SAME	NUMBERS UPPER = LOWER =	IN BOXES IN VERTICAL DI HORIZONTAL	NDICATE FLO ISPLACEMEN DISPLACEMEN	T, POSITIVENT, POSIT	ON IN DEGR	EES. SH OW FROM LE	LEFT SURVEY
PAKE	TE- TA	BLE IS SEEN	FROM THE	101			PAKE	NOTE- TA	HE IS SEE	N FROM THE	and the same	£ .	# C	RAKE

	RUN 33 V= 125	POINT 15	3 ALPHA= 4.0 = 46.1 PSF.		DEG PSI=-2.0 DEG CONFIGURATION FHBI	18H		KU14 33	PUINT 1	16 ALPHA= 4.0 DEG q= 48.1 PSF. CONF	CONFIG	DEG PSI=-2.0 DEG CONFIGURATION FHBF	
9.	96.	.97	.92	98.	.6.	6.	8.	6.	%.	66.	6.	16:	6.
	6.	6.	\$6.	1.01	7 1.02			1.01	\$6.	.97	L		
1.00	.97	%	\$6.	16.	.93	36.	٠.	1.01	.97	1.00	. 76.	*6.	<i>š</i> .
	.95	<i>*</i> .	86.	₫] * .	ş.			.93	.95	88.	ક. ગુ	۶٠. ۱۹۰	-
.97	.95	.87	57.	.97	1.04	96.	ġ.	67.	.88	76.	1.00	1.00	<i>š</i> .
	.85	.97	.97	1.07	96.			*5.	69.	.93	·••	.95	
٠,6	.87	٠.	.89	1.05	1.04	96.	8.	.6.	1.01	.87	.95	<i>*</i> .	6.
2.7	.63	58.	*	06.	٠. ئ.	— Г	L	 -₹.	٠. ۲	67.	٠٠٠.	7 %.	-
, 47 .	69.	1.03	.60	.78	6.	1.00	3.	.59	.0.8	٠٠.	2.	.93	5.1
_	. 16.	*:	96.	ş.	%.	F	 	 *•. 	-1.8	.13	21.1	.8.	-2.1
.07	.60	٠٠.	9#•	.93	16.	1.06	1.06	.95	66.	.24	·30	1.02	1.00
	.59	.32	1.12	•5•	1.05			ss.	.85	.80	.72	16:	
ę.	1.07	• 55	1.09	.79	.73	۶.	1.04	.43	٠7.	54.	98.	1.05	•
,	3.	00.1	KAKE	7.	71.01	— Т:		_ 	٥٠. ٢	KAKE	96.	٦ ٠٠٠	7
1.01	06.	9.	Φ	96.	1.03	96.	5.1	3.4	.4.4	MOUNTING MOUNTING	6.	1.00	5.
-	26.	<i>‡</i> .		.6.	`*. F.		ī	86.	 	POTNT	٠.	: : : : :	7-
66.	96.	1.16	*S*	1.10	16.	۲۴.	1.01	1.01	. 6.	\$.	96.	. 67	7.
	1.01	.52	99.	.92	96.			1.00	.50	67.	96.	6.	* ****
	1.07	.57	\$1.	96.	1.00	<i>š</i> .	۲۵.	1.00	2.	\$.	66.	26.	ð.
SERS IN	NUMBERS IN TABLE ARE	PHESSURE	COEFFICIE	COEFFICIENTS C	٩,		NUMBERS	IN TABLE AR	E PRESSURE	ARE PRESSURE COEFFICIENTS CP - PI-PS	NTS Co :		
SERS IN	NUMBERS IN BOXES INDIC UPPER = VERTICAL DISPL LOWER = MORIZOHTAL UIS TO RIGHT LOOKING AFT.	DICATE FLON SPLACEMENT DISPLACEMENT	DIRECTION POSITIVE	ICATE FLOW DIRECTION. IN DEGHEES. PLACEMENT, POSITIVE FOR UPWASH ISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SWAND	EES. SH Ob FROM LE	FT SURVEY	COPER :	VERTICAL HORIZONIA	SPLACEMENT SPLACEMENT UISPLACEME	DE DIRECTION POSITIVE	FOR UP A	EES. SH OW FROM LE	LEFT SURVEY
- TABL	NOTE - TABLE IS SEEN F	FRUM THE FLOW				PAKE MORNING	NOTE- TA	TABLE IS SEEN FROM THE FLOW	FRUM THE	10	•		3.5





1.00		RUN 33 V= 125.				SIE 0 DE	
1.00	.98	.97	.95	.96	.92	.99	.99
.98		.99	.96	.97			
.98 .96 .96 .99 .96 1.00 .99 .99 .96 .90 1.03 1.00 .99 .95 .93 .95 .93 .95 .95 .93 .95 .95 .96 .90 1.04 .99 .96 .90 1.06 .90 .90 .90 1.06 .90 .90 .90 1.06 .90 .90 1.00 .90 .90 .90 .90 .90 .90 .90 .90 .90	.00	.98	.98	.99	.98	1.00	.95
1.02 1.00 .97 .95 .93 .93 .95 .95 .96 .90 1.06 .96 .96 .90 1.06 .97 .95 .96 .90 1.06 .96 .90 1.06 .96 .90 1.07 .96 .90 1.07 .96 .90 1.07 .90 1.07 .90 1.07 .90 1.07 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90		.98	.96	.96		.99	
.95	.98	.96	.94	.99	.96	1.03	1.00
-1.2		1.02	1.00	.97	.95	.93	
.98	.95	.88	.97	.87	.96	.90	1.08
.96	Г			1.11			<u> </u>
.80 1.16 .78 .71 .92	.98	.83	1.01	.90	1.04	.95	.98
.53 .39 .80 .22 .74 .97 .76 .57 .85 .70 .67 .90 .91 .3.1 .95 .5.7 .55 .91 .93 .67 .67 .91 .91 .75 .66 .93 .93 .67 .2.7 .91 .91 .75 .66 .92 .92 .92 .91 .87 .97 .52 .98 .94 .99 .1.03 .1.00 .60 1.03 1.01 1.00 .00 .94 .81 .65 .92 .92 .92 .90 .87 .97 .52 .98 .94 .99 .99 .99 .99 .99 .99 .99 .99 .99 .99	L			.78			8 1
.97 .76 .57 .85 .70 .67 .96 1.03 .6 .95 .5.7 .55 POINT .66 .93 .93 1.00 .94 .81 .65 .92 .92 .92 .87 .97 .52 .98 .94 .99 1.03 1.00 .60 1.03 1.01 1.00 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS $C_P = \frac{P_T - P_S}{Q}$.98	.89	.72	1.26	.37	1.40	1.04
1.03		.53	.39	.80	.22	.74	
1.03	.97	.76	.57	.85	.70	.67	.96
1.03	Г						<u> </u>
.91 .75 .66 .93 1.00 .94 .81 .65 .92 .92 .91 .87 .97 .52 .98 .94 .99 1.03 1.00 .60 1.03 1.01 1.00 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP = PT-PS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES.		.95	.55		.93	.67	.98
.87 .97 .52 .98 .94 .99 1.03 1.00 .60 1.03 1.01 1.00 NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS Cp = PT-PS NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES.	-			POINT	_		
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP = PT-PS	1.00	.94	.81	.65	.92	.92	.99
NUMBERS IN TABLE ARE PRESSURE COEFFICIENTS CP = PT-PS q		.87	.97	.52	.98	.94	
NUMBERS IN BOXES INDICATE FLOW DIRECTION IN DEGREES.	.00	1.03	1.00	.60	1.03	1.01	1.02
LUNER = HORIZONTAL DISPLACEMENT, POSITIVE FOR FLOW FROM LEFT SURVEY	NUMBERS UPPER =	IN BOXES IN	DICATE FL	OW DIRECTI	ON IN DEG	REES.	FT SURVEY

APPENDIX III

ROTOR PERFORMANCE AND OPERATING CONDITION DATA TABLES

		r	TABLE X	¥ ₹ Ø	WIND T MOMENT SPEEDS	5	G. >	OPERATING ICIENT-SO: ARIOUS FU	- I W	H	IONS A RATIOS ATTITU	AND OS AT TUDES	SHAFT F THREE	AFT FORCE AND HREE FORWARD CONFIGURATION	AND RD ION FH		
&⊃Z	CONF	FTVSEC	LB/FT ² DE	10 EG	9	98	₽ 8	• 8	300	• 9 8 ₽		4,3	÷/°5	C, /e	4°5	C /e	C marke
۲	F	5	11.9	╄	8	١	┝	9	9	0	9	6010	.00185	70000	.0000	-,00000	00001
87- 8	I	103.0	=:		.29	9	•		0	•	0	0030	.00153	0000	00	000	•
וַנ	E	300	11	•	•	*	_	•		0 0	0 0	6000	.00169	0002	20000	1 1	40000
1-1	ı	63	11.9			•	• •	0		• •	9	.0015	.00181	00017	.00007	.000	30
7-1	I.	603	:	* :	<u>:</u>	9	•	0.	0.	0	0.	.0059	.00151	.00063	00000	.00019	•
67-14	ij	Se.	11.9	* *	294	* *	-	•	0.0	0.1	00	0100	00162	0000	20000	21000-	00022
7	H	03.	11.	1	.2	-0	•				-	.0013	~	00005	9		
,	E	03.	11.9	*	÷	†	•	0.	0.	0	•	6000	•	.0000	900	.00002	.00003
, ,		200	::	•	200	•	•	0.0			0.0	0100	.00185	00033	20000	0000	1000
	ij	3	::	*	20		_	•		9 6	9 6		40100	10000	0000	00000-	0.000
7	ī	03.	=	*		_			0			8000	8	00017			. 00012
۲,	H	03.	11	•	. 5	•	<u>·</u>	•		0	0.	000	.00104	00032	*0000	00001	0005
	I i	9	32.3	•	<u>.</u>	•	<u>.</u>	0.	•	0	0:-	.0019	.00544	*00000	.00007	00000	.00001
,		9,5	25	•	-	.	•	•	•	0.	0.	.0023	.00517	.00021	00005	*0000	.0000
٦.	E	0	32	•		_	•			9		6100	000000	.00023	00000	00002	70000
7	I	70.	32.3	•	64.	•	•	•			0	.0028	.00560	00036	.00010	00008	000
87-27	ij	200	35	7 4	3 4	P	•	ė.	• •	•	0.0	0016	01589		100001	7.00947	64000-
	I	70.	32	1	-	*			•	0		.0023	.00537	•	90000	0000	
۲,	I i	2	32	*	.5	1	•	0.	•	0	0	.0050	00848	i	.00000	•	*000
87-32	ij	9		D 3	100	* *	• •	• •	•	•	0 0	0010	.00547	.00113	.00007	1 1	00079
7	ī	70.	32	1		_	_		•			.0021	.0053¢	00066	.0000	•	95000
47-34	I I	5	35	ĭ	·	•	0.	0.	•	0.	0.	.0021	.00540	00111	.00005	00005	
3.5	H	50	72	-	1.026	1		•	•	0	0 0	9000	.02243	.00020	1000	00010	11000-
87-37	H	55	72.	_	1:0	~	•		•	0		50	02203	• •	£1000	- 0000	
5	I	55	72	0	1:0	2	_	•		0	0.	.0103		000	1000	•	
2	I.	ទំ ម	72	•	1:0	*	_	•	•	0	0	-0092	.02290	•	.00020	005	00005
1		מי	3.5	_	0.1.	7	•	•	•	0.	0.0	250	.02230	.00962	.00155	.0019	.0042
7-6	E	5	7.5	, ,	1.024	F 6	•	• •	•	9 6		7000	0270	\$6100	1000	21000-	\$ 0000 ·
7-4	F	55	72.	Ĩ	1:0	~	_			?		900	.02311	00097	00019	.0000	.00070
87-44	I I		_		•	9	•	6.		0.	0.0	.0082	.02310	.00264	0000	0	.001
1	E	ດີເກີ	7.5	7 7	1.026	• •	• •	0 0	•	0 0	9 9	.000	.0220	.00153	\$1000.	70000	-00100
-	I	55	72		1	-	_		0	• -	0	3 8	02317	9 9	-	2 2	- 000 10
																П	

C pu / FHC P. 0 AND VARIOUS FUSELAGE ATTITUDES, CONFIGURATION XII. WIND TUNNEL OPERATING CONDITIONS AND SHAFT FORCE AND MOMENT COEFFICIENT-SOLIDITY RATIOS AT THREE FORWARD c, à :: c, 60 6,0 SPEEDS 1 **★** TABLE CONF

TABLE XI 14 ABLE 14 ABLE 15 ABLE 16 ABLE 17	i⊨-	DEG DEG DEG DEG DEG	. 295 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0034 .0009700020 .0001800002	294 -4.0 0 0 0 0 -0 -0 -0 -0 0034 .00074 .00022 .000150000	. .292 6.0 .0 .0 .0 .0 .0 .0 .	. 294 4.0 .0 .0 .0 .000 .0036 .0012200002 .0001800042 .	<u>· · · </u>	. 292 -6.0 .0 .0 .000 .0024 .00036 .0016 .0001200001	294 -4.0 0 . 0 . 0 - 0 - 0 - 0 . 0004	295 0. 0. 0. 0. 0. 0. 0.0081000820004200042	295 .0 .0 .0 .0 .0 0 0 0 .00003 .00003 .000442	- 1262 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	255 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0.000	- 503 4:0 .0 .0 .0 .0 00 .0121 .00450 .00007 .0002000113	4540 · 0 · 0 · 0 · 0 · 0 · 0 · 0 · 0 · 0 ·	• •	503 -4.0 . 0 . 0 . 0 . 0 - 0 - 0 . 0 . 00350 - 00005 . 00016 - 000053 . 00000	503 4.0 .0 .0 .0 .0 .0 .0 .0 .00 .0041300010 .0002000122		0000. 1.900. 0. 00. 00. 00. 00. 00. 00. 00. 00.	1.0000 1.0000 1.000 0.1 0.1 0.1 0. 0. 0. 1.0	- 1.014 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 .	. 1.012 *.0 .0 .0 .0 .0 .0 0 .0 .0	1.012 4.0 .0 .0 .000 .0502 .01925 .00250 .0005300447	- 087000 + 98000 80810 67400 00- 01- 00 00 00 100-100-100-100-100-	1.012 4.0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .	-2. 1.014 .00 .0 .0 .000 .0462 .01770 .00103 .000%5003%0	0.11.01
TABLE XIII. WIND MOMEN MOMEN SPEED SPEED 11.9	OPERATING FICIENT-SOL VARIOUS FUS	DEG DEG DEG	000	0. 0.		0. 0. 0.		•	•		0.	0.0		0	0.0	0.	0.		0.			0.			0. 0. 0. 0.	0.			0.	
# nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn	TABLE XIII. WIND MOMEN SPEED	LEVET DEG	0 11.9 0. 0. 295	0 11.9 -4. 0294	11.9 6. 0.	0 11.9 4. 4294	0 11.9 -6. 4292	0 11.9 -64292	11.9 -44. 294	0 11.9 0. 6.	0 11.9 0. 4.	0 11.9	0 11.9 0.0	2 32.4 0. 0.	32.4 -6. 0. 500	2 32.4 4. 0. 503	2 32.4 8. 0.	2 32.4 -4. 4. 500	2 32.4 -44503	2 32.4 48.	2 32.4 0. 4. 5	2 32.4 04.	32.4 0.	7 50.8 0. 0. 1.	7 50.8 4. 0. 1.01	7 50.8 4. 4. 1.01	10.11.0	7 50.8 4. 2. 1.01	7 50.8 02. 1.01	7 50.8 0. 0. 1.01

	Cas/ø	10.00	99000	00026	.00050	.00018	.00075	00040	1,000	.00177	.00089	00003	00100	.00062	.06247	.00145	00000	.00262	.00184	40000.	00003	.00071	.00307	.00261	.00110	.00179	.00098	.00331	0000	.00040	.00256	00017
	e pa /e	20.00	00438	00014	00014	.00013	.00400	00013	-00000	.00005	.00008	.00011	- 00418	00003	00014	00001	-,00006	00009	0000	00018	00001	00021	00004		0000	00007	.00013	00501	00000		00023	00019
AND	a/ ° 3 .	0.15	.00523	7##00	00000	00022	100347		00329	.00197	.00329	54400	00350	.00330		.00105	00327	.00619	.00453	.00334	.00076	00101	.00605	.00445	19100	00100	.00082	.00100	.00221	.00239	.00217	.00224
: FORCE AN EE FORWARD ROTOR	C, /6		.00103	.00209	50000-	.00111	00070	.00225	0001	• •	64000	.00169	00168	0n065	00304	00167	00014	00308	00222	00103	00001	00087	0038	00324	00139	00227	00140	16200-	99000	00092	00308	.00150
SHAFT F. T. THREE S. AND RC	0/00	į	00391	•	00234	.01114	00233	• •	00217	.00695	.0022	•	00411		.00169	.00551	52000	.0007	.00147	.00165	.00433	.00557	.0000	.00157	00200	.00540	.00407	49400	.00304		2000	.00488
AND OS AT TUDES ION F	ر ^د /ھ	133	.0828	.0538	0.052	9990	0516	.0541	.0536	.0824	.0535	.0538	0636	.0299	.0612	.0471	0200	.0701	.0600	0770	.0235	0473	.0706	.0602	0462	.0473	.0231	4100	6400	0057	0250	.0026
CONDITIONS ANDITY RATIOS ELAGE ATTITUN CONFIGURATION	930 DEG	3	1:7	1:		2.6	7.1	0	200	4	3.8	9.	8.3	5.3	7.7	4.2	5.0	9.9	7.4	10.2	1.1	5.7	6.6	8.2	7.0	9.4	1.7	4.6	0	9.1	9.0	1:4
NDITY AGE NFIC	A.	3	2.5	-5.0	200	-1.8	1.0	-2	2.5	15.5	-1.8	-1.9	-7.1	-2.3	4.8-	2.5	2.5	6	7	9	-1.5	2.5	5.3	-2.6	7.7	-1.6	7.0	-2.2	-1.2	-7.6	? 4	-2.5
NG CONDITY SOLIDITY FUSELAGE	DEG.	3		0.0	•	•	0,0	•	•		•	ė,	9.0	9	ė	• •	9		•	00	•	0 0	•	0	9 9		•	. 0	•	•	? 6	0
1 4 1 7 1	DEG		0	•			7 7		••	•	•		9	•	•	ė.	•		••	• •	•	•	?	•	9 9	•	•	•	•	0.0	2 9	.0
OPERATI FICIENT- VARIOUS ONDITION	PEG DEG		12.0	•	0 0		8.0	•	9 6		•	10.0	0.0		10.0	•		12.0	10.0	• •	•	•	12.0	10.0	•		•		•			*
TUNNEL T COEFF S AND V TING CC	930	íl,	2.6-	-11.9	* "	5.8	-6.8 -8.8		0.7-	2 -	-7.6		0.0		-7.6	7.5	9.0	-8.6	2.7.	9	2.9	-0-	9.6		9.9	9		0.0		1.4.	9	1.4
WIND TUNN MOMENT CO SPEEDS AN OPERATING	•	- 10	.292	.292	200	.291	294	.292	200	294	.294	.292	294	503	. 504	.503	503	.504	100	500	.503	200	.504	.504	500	. 503	.503	1.012	5	1.010	1.010	1.012
MO SP OP	o€G	3	::		• e			*	* 3	*	9	*	9	0	ö	<u>.</u>		*		; ;	;	•	7	•	1	7	÷		;	ċ	•	2:
XIV.	• 08 88		9	-8-	; ;	8	9		; ;	3	*		9 0		•	; •	*	•	•	• •	;	•	•	•	•	•	•		ö	;	; ;	•
E.	18/8 T		11.9	11.9	11:0	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	22.2	32.2	32.2	49.6	*9.			
TAELE	5T/3EC	Ţ	0	0 3	5 =	0	00	0	0 0	9 0	0	o o	2 0	N	Ŋ	N C	7 ~	N	N	NN	N	20	N	Ņ	70	N	Ņ	4 0	~	N C	Y O	100
	304	97.	₽ £	I I	1 1	H	D I	I I	DI	T. T.	J.	1	D E	FIE	FIE	9	e i	P I	SH.	PE	FHB	7 E	Į	P I	e E	Ĩ	T I	2 1	E.	9	2	£
	&⊢ ⊄⊃Z	П	61-0			-	7:	1-1]]	-		7.	? ?	•				7	7	62-13	62-14	62-15	62-17	62-16	62-20	62-21	62-22	9 -1		-1:	7	• 1

	ı						1	ABLI	TABLE XIV - Concluded	1	Jonel	nde	res.					
4₽ &⊃Z	300	FT/SEC	LB/FT	oë,	◆ DEG	1	OEG	€ c D€G	DEG	DEG	A.e	B.s DEG	د ارم	e/ °)	c^ /e	2/62	C pu /e	C mm /e
41-12	FF	213.2	0.0	•	8	1.012	-1.3	0.4		0.	1.4	1.3		01900*		.00190		
31-13	Q.	213.2	. 0	•	٧'n	1.012	1:/-	0-1-0-1		0.0	***	7.	0352	-	•	00834	.00415	.01873
41-15	FHE	213.2	49.0	;	'n	1.010	0.7	4.0		: 0	0.0	8.0	0000	00450		.00093 .00244	00047	00047 - 00116
97-17	9 1	213.2	6.0	;	20	1.010	-1.0	0.4	•	0.	-4.1	5.0	.0340	.00515	•	.00219		.00167
7 - 1 9	H. H.	212.6	0 0	•	2.5	010-1		0 0	0.0	0.	-7.0	n .	0025	.00334		.00240	.00388	00105
41-19	F.	213.2	6	•	- 2	1.012	7.40	0 0		00	2.2	4.0	0430	.00629		.00179	00471	.00414
41-20	E E	213.2	69.8	;	_	1.010	-4.5	0	0.1	0	-7.2	8.5	0067	76+00.	•	00235	65400	.00092
17-14	2 :	213.2	60.0	;	-2.	1.010	-1.8	4.0	٥.	0.	-3.3	5.8	.0320	.00567	ĭ	.00207	91000.	.00333
77.1.	2	213.6	9,	:	•	1.012	7.7-	4.0	0.	•	-2.2	#.	.0017	.00537	.00036	.00218	.00035	00002
										ı	ĺ	ĺ						

	C /e	1 400	.00229	.00089	.000.81	.00543	.00015	.00201	91000	84000	1000	00000	.00003	0400	.00054	.00223	.00023	00020	00014	.00161	2000	- 00007	.00110	00027	0000	.00117	.00127	.00325	900	00130	. 00200	.00136	00262	.00294	
	2 at 2	27 70.7	60257	00050	00051	00077	.00352	110452	00056	00052	0000	0.000	1000	00000	00074	00507	. 60330	00071	00062	99000	. 00200	99000	.00100	-00092	0000	.00046	. 00093	.00103	50100	1,0067	. 00065	. 00060	20100	00782	
E AND	ø, ° 0	04140	.00573	.00465	.00351	00163	.00360	.00577	68400	94600	.00136	17700	1000	00344	.00478	.00566	.00361	00145	00330	.00435	00100	.00322	.00430	.00191	0000	.00110	.00331	.00596	00100	00321	.00113	.0009	00632	.06209	-002.54
ND SHAFT FORCE AN AT THREE FORWARD DES AND ROTOR V FHBf	c, /e	04000	00175	00024	64000	01216	10000-	00089	.00103	00005	- 1000 -	44000	71000	-000070	15000-	00218	00065	60000	000030	00179	76000	.00122	00120	.00033	96000	00164	00176	00420	- 00195	00247	46270	06209	95,75	00438	00031
AND SHAFT OS AT THRE UDES AND ON FHBF	e/ °3	10000	00041	00728	00276	01073	00199	00570	00653	00230	.00090	90000	00030	00326	00763	00689	00337	.0006	00037	.00104	.00359	.00072	.00149	.00226	00324	00457	.001	20100	75000	00156	55400	.06330	00216	00000	- 000
CONDITIONS AND SIDITY RATIOS AT ELAGE ATTITUDES CONFIGURATION FI	4 75	100	818	.0517	•0506	.4665	_	• 6806	.051	.0303	. 750	1000	46000	100	5640	.078	9940.	5500.	9000		CC 40.	6319	.0554	.0239	6293	1199.	.0325	1999	42.0	.0501	.0614	.0297	200	.0620	1
NDIT ITY AGE NFIC	 DEG		1	3.9	S -	2.3	6.8	1.2	3.6	2	0 1	2	0 6		*	2.1	9.1	7	2	7.9		3	7:4	200		:	3.6			10.6		9:0	-	-	
NG CONDI'SOLIDITY FUSELAGE	۸ • 066		2.0	-2.4	1.5.1	2.5	-9-1	1.6	4.5	2.5	200	9 0	2 1	-2-	-2.0	2.5	-7.1	9	200	13.7	72.5	-2.7	4.2	2.5	1	-2.5	-1.0	2.5		-7.5	•	71.0		6	
TTIN TT-Si TS F	990	3		٥.	o c		٥.	0.	9,	9.0	•			9	0	•	•	o, c	. 0	0	9.6	. 0	•	ó	0	•	•	, c	9	0	•	•		0.0	•
NNEL OPERATING CONDI COEFFICIENT-SOLIDITY AND VARIOUS FUSELAGE NG CONDITIONS, CONFI	9 . 0.66		• •	•	o, c		6.0	*	•	••	•	•	•	•	0	•	•	٥٠		•	•	•	•	٥٥	•	•	•	••	•	•	•	o,	•	•	*
NNEL COEFF AND V	6 c DEG		12.0	10.0	0 0		0.0	12.0	0.0	0			,		0.01	12.0	8.0	0.9	9	0.01				•		•	0	0			•	•			3
15 11	ec DEG					9	9.9-	2.0	11.4	0.7	0 -		•	-7.6	-12.2	1.1	-7.8		0	-7.0	N 6	0	-7.3	2	2	•	2.6	9 6	9	9		7.0	1	-1.0	
WIND T MOMENT SPEEDS OPERAT	X.	3.6	2,35	.2.72	\$ 7. C	291	.2,35	.275	71.70	*	200	2.4	2.5	254	2,32	242.	.245	27.5	5.13	400	200	503	30	***	503	503	5000	2	9	505	.503	500		1.012	
×.	• DEG	3	; ;	•	•	•	0	*			1	1		7	1	†	-9-	0 0		•	• •	•		•		•	7	11	7	7	7	7			3
3LE	e, DEG	٤		-9.	•		ö	9	0 4	•		1	ç	1	9	÷	ċ	9 9	4	•		7	ė	•	4	*	7	•			•	•		•	•
TABI	B/FT	9	11.0	11.8		11.0	-	11.0	9					11.0	11.0	1:1	11.0		32.1	32.1	72.1	32.1	32.1	32.1	\$2.1	32.1	32.1	7.5	30.	75.1	7:3		320.1		
	FVSEC	1	103.0	_		103.0	_	_			_	_		_																				213.2	27.5
	CONF	3875	Į.	FHB	190	100	FHB) E	2	Ì	Ē	FIRE	_	_		E E											P			•	<u>.</u>	= :		5	
	0.⊢ (r⊃26	200	5	29- 7	200	29-10	29-11	29-12	21.00		29-16	29-17	29-16	30-05	30- 7	9		30-10			1	-15	2					1							1

	T -	
	C mad/e	00125 00025 00183 00194 00105 00138 00138 00138 00138 00138 00138 00138 00138
	C.p.M/e	
·	9/00	.00232 .00270 .00254 .00254 .00254 .00265 .00265
	Cy /σ	
	e,00	00823 00823 00823 00823 00873 00874 00837 00838 00843
	داه	.01182 .01182 .0180 .0184 .0174 .0174 .0175 .0175 .0176 .0176 .0176
77	DEG	8444444 W44444 84844944949499
Concluded	930 •	24.02.7 24.02.7 24.02.7 24.02.7 24.03.
onc	DEG	000000000000000000000000000000000000000
XV - C	DEG	
i .	e DEG	22222 22 22222
TABLE	o e c	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	ą.	10.010 10
	DEG	000000000000000000000000000000000000000
	r* DEG	
	B/FT	
	FTVSEC	20000000000000000000000000000000000000
l	CONF	
	ب ∡⊃≥	633-10 631-10 631-10 631-10 631-11 631-11 631-10

APPENDIX IV

ROTOR BLADE STRESS AND FLAPPING DATA TABLES

	TABLE XV		ROTOR I					, LIA	PPIN	G DAT	Α,	
RUN POINT	q , psf	μ	β, DE	G AIN	M _{F 3R}	,IN-LB	M _{F.GR} ,	IN-LB	M _{T. IBR}	,IN-LB	M _{T 35}	,INLB
61- 5 61- 6 61- 7 61- 7 61- 7 61- 8 61-10 61-11 01-13 61-14 61-15 61-15 61-15 61-15 61-15 62- 7 62- 17 62- 18 62-11 62-11 62-13 62-14 62-15 62-17 62-18 62-17 62-18 62-19 62-11 62-18 62-19 62-11 62-18 62-19 62-11 62-19 62-11 62-19 62-11 62-19 62-11 62-19 62-11 62-19 62-19 62-11 62-19 62-1	11.9 11.9 11.9 11.9 11.9 11.9 11.9 11.9	1.01 1.01 1.01 1.01 1.01 1.01 1.01 1.01	204 337 339 4 323 4 1226 6 4 C 1 1 5 5 4 6 7 9 4 7 3 5 3 6 1 7 6 9 8 0 2 3 5 6 5 0 1 0 5 7 2 2 3 2 3 2 2 7 6 2 3 2 2 7 6 2 3 2 2 7 6 2 3 2 2 4 5 1 6 1 2 1 5 3 1 6 2 1 4 3 4 2 7 4 1 4 4 5 7 2 4 1 4 5 7 2 4 1 4 5 5 7 2 4 1 4 5 7 2 4 1 4 5 5 7 2 4 1 4 5 5 7 2 4 1 4 5 5 7 2 4 1 4 5 5 7 2 4 1 4 5 5 7 2 4 1 4 5 7 2 4 1 4 5 7 2 4 1 4 5 7 2 4 1 4 5 7 2 4 1 4 1 4 5 7 2 4 1 4 1 4 1 5 7 2 4 1 4 1 4 1 5 7 2 4 1 4 1 4 1 5 7 2 4 1 4 1 4 1 5 7 2 4 1 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1	31113311113111111111111111111111111111	9, 11. 9, 7. 6. 10. 11. 8. 9, 7. 8. 13. 12. 14. 126. 13. 17. 14. 124. 225. 20. 27. 25. 20. 27. 25. 20. 27. 25. 20. 27. 22. 22. 22. 25. 20. 22. 22. 22. 22. 22. 22. 22. 22. 22	-31212121212121212121212121212222222222	12. 174. 12. 114. 12. 12. 12. 12. 12. 12. 12. 12. 12. 12	-667777777777	4. 4. 4. 4. 4. 4. 4. 4. 4. 4.	-7-55-6-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-	33333414	-675555555555

TABLE XVII. ROTOR BLADE MOMENT AND FLAPPING DATA, CONFIGURATION FHBf								
RUN-POINT	q,psf	μ	β, DEG MAX. MIN.	M _{F.3R} , IN-LB	M _{F 6R} ,IN-LB	M _{T.IBR} , IN-LB MAX. MIN.	M _{T.35R} , INLB MAX. MIN.	
29- 5 29- 7 29- 7 29- 7 29- 7 29- 9 29-10 20-12 20-12 20-12 20-13 20-14 20-16 20-17 20-16 30- 7 30- 9 30-10 30-11 31- 7 31- 15 31-15 31-15 31-15 31-17 31-19 31-20 31-21	49.9 43.9 49.9 49.9	.29 .29 .29 .29 .29 .29 .30 .30 .50 .50 .50 .50 .50 .50 .50 .50 .50 .5	0.5.0 6.0 6.5.0 6.5.	55. 179. 1812. 139. 1010. 1513. 1216. 1714. 1712. 1311. 1513. 1614. 1312. 1513. 1614. 1312. 1513. 2015. 2017. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 1817. 2020. 2325. 2025. 2017. 2020. 2325. 2025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025. 3025.		81077348108108108121115121013111514131422142015151515151515151717171717171717	22. 311. 310. 311. 310. 48. 59. 67. 512. 510. 310. 310. 310. 410. 310. 310. 410. 310. 1312. 1413. 1322. 1517. 1423. 1518. 1523. 1423. 1518. 1522. 1518. 1522. 1518. 1522. 1710. 1712. 1812. 1914. 1817. 1723. 1817. 1723. 1817.	

Security Classification DOCUMENT CONTROL DATA - R & D (Security classification of title, body of abstract and indexing annotation must be antered when the overall report is 1. ORIGINATING ACTIVITY (Corporate author) Sikorsky Aircraft Division of United Aircraft Corporation Stratford, Connecticut 3. REPORT TITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHOR(5) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 56. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES	Unclassified			
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is 1. ORIGINATING ACTIVITY (Corporate author) Sikorsky Aircraft Division of United Aircraft Corporation Stratford, Connecticut 3. REPORT TITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHORIS) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) 6. PROJECT NO. Task 1F162204A13903 6. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES				
1. ORIGINATING ACTIVITY (Corporate suthor) Sikorsky Aircraft Division of United Aircraft Corporation Stratford, Connecticut 3. REPORT TITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHORIS (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 231 26. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES				
Sikorsky Aircraft Division of United Aircraft Corporation Stratford, Connecticut REPORT VITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER Considering norts (Type of report and inclusive dates) Final Report Author(8) (First name, middle initial, last name) James C. Linville Contract or grant no. DA 44-177-AMC-203(T) Depose no. Task 1F162204A13903 Contract or grant no. Task 1F162204A13903 Contract no. Task 1F162204A13903 Cont				
Division of United Aircraft Corporation Stratford, Connecticut 3. REPORT TITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHOR(S) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) D. PROJECT NO. Task 1F162204A13903 6. 6. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis. Virginia 23604. 11. SUPPLEMENTARY NOTES				
Stratford, Connecticut 3. REPORT TITLE AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. OESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHOR(S) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 5. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 6. USAAVLABS Technical Report this report) SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittate governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis. Virginia 23604. 11. SUPPLEMENTARY NOTES				rassified
AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHOR(S) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. d. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittal governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES		Pration	is. Shoop	
AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF ROTOR H CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHOR(S) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittal governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	3. REPORT TITLE			
CONFIGURATION AND FUSELAGE YAW ON THE WAKE CHARACTERIS ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHORIS) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittal governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES		TION OF THE EFFE	CTS OF	F ROTOR HEAD
ROTOR PERFORMANCE OF A 1/8TH SCALE HELICOPTER 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report 5. AUTHORIS) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittate governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
S. AUTHOR(S) (First name, middle initial, last name) James C. Linville 6. REPORT DATE February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 76. TOTAL NO. OF PAGES 231 10 96. ORIGINATOR'S REPORT NUMBER(S) USAAVLABS Technical Report Mile report) SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				KACTERISTICS AND
Final Report 5. AUTHOR(S) (First name, middle initial, last name) James C. Linville 5. REPORT DATE February 1970 5. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) D. PROJECT NO. Task 1F162204A13903 c. 5. ORIGINATOR'S REPORT NUMBER(S) USAAVLABS Technical Report hidrogen for the report) SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittate governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	4. DESCRIPTIVE NOTES (Type of report and inclusive des	(00)	PIER	
James C. Linville 6. REPORT DATE February 1970 50. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) 6. PROJECT NO. Task 1F162204A13903 6. 6. 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittang overnments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. TOTAL NO. OF PAGES 231 10. Sc. ORIGINATOR'S REPORT NUMBER(S) USAAVLABS Technical Report this report) SER-50604 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
February 1970 Se. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) D. PROJECT NO. Task 1F162204A13903 c. d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittal governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 76. TOTAL NO. OF PAGES 231 10 USAAVLABS Technical Report fills report) SER-50604 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	5. AUTHOR(S) (First name, middle initial, last name)			
February 1970 Se. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. JOURNAL OF THE REPORT NO. SER-50604 JOU	James C. Linville			
February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis. Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
February 1970 6. CONTRACT OR GRANT NO. DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis. Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel			PAGES	the state of the s
DA 44-177-AMC-203(T) b. PROJECT NO. Task 1F162204A13903 c. d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
Task 1F162204A13903 c. b. OTHER REPORT NO(8) (Any other numbers the state report) SER-50604 SER-50604 This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. SER-50604 U. S. Army Aviation Materiel		Jan Ontolina Ton O	neron i no	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
b. OTHER REPORT NO(8) (Any other numbers that this report) 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittate governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	DA 44-177-AMC-203(1) b. PROJECT NO.	USAAVLA	BS Tec	hnical Report 69-94
d. SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmittal governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	Task 1F162204A13903			
SER-50604 10. DISTRIBUTION STATEMENT This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel		S. OTHER REPOR	r NO(8) (Any	other numbers that may be accigned
This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
This document is subject to special export controls, and each transmitta governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories. Fort Eustis. Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel	d.	SER-5060	4	
governments or foreign nationals may be made only with prior approval of Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
Army Aviation Materiel Laboratories, Fort Eustis, Virginia 23604. 11. SUPPLEMENTARY NOTES 12. SPONSORING MILITARY ACTIVITY U. S. Army Aviation Materiel				
U. S. Army Aviation Materiel				
U. S. Army Aviation Materiel	Army Aviation Materiel Laborato	ries, Fort Eustis, V	irginia	23604.
	11. SUPPLEMENTARY NOTES			
Fort Eustis, Virginia		U. S. Army	Aviatio	on Materiel Laboratorie
		Fort Eustis,	Virgin	nia
13. ABSTRACT	13. ABSTRACT			
	This report presents the results	of an experimental in	vestigat	tion of the effects of
This report presents the results of an experimental investigation of the e	rotor head configuration and fuse	lage yaw on the wake	charact	teristics and rotor
This report presents the results of an experimental investigation of the e rotor head configuration and fuselage yaw on the wake characteristics an	performance of a generalized 1/8			

configurations were tested with and without rotor blades at various operating conditions. Fuselage yaw angle was varied for all conditions tested. The flow direction and dynamic pressure at the tail of the model were measured, as were rotor shaft forces and moments. When the model was tested with the rotor, blade vibratory stresses were measured. Wake survey data were obtained with and without rotor blades; however, the data obtained with blades were not consistent.

Unclassified

Security Classification

Unclassified

Security Classification						
14. KEY WORDS	LIN	K A	LINK B		LINK C	
ALI RUNUS	ROLE	WT	ROLE	WT	ROLE	WT
Helicopter Wake Characteristics						
Helicopter Drag		İ	1		1	
Rotor Performance	l		l		ŀ	i
Rotor Head Drag	1			l .		i
Kotor Head Drag	ł				1	Ì
Helicopter Yaw)		1	
	ł		ł		i	
	ł		ļ		ļ	
	1			İ	l	
				İ	1	
			İ	i	1	
			l	!		
		1	l]	I	
	Ì		i			
			ł	ļ		
		1				
			i .]	
			<u> </u>	į	}	
	•					
				ļ		
	i '					
	ĺ					
	ĺ					
					i	
					1	
	1		1			
		1				
					i	
		i				
	3(-)	33 3				

Unclassified

Security Classification